

Manufacturers Record

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SCIENCE AND INDUSTRY

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To Preserve The American Way

OCT 14 1940

Philip D. Reed, Chairman of the Board of the General Electric Company, in an address a short time ago before the Sales Executives Club of New York, emphasized a work to be undertaken "if we are to continue our system of competitive free enterprise." He referred to it as "the job of selling the American way of life to Americans," and added "it may seem paradoxical that this should be necessary or that we as a people should be considering even for a moment any other way of life. But the stark truth is that we are doing precisely that. And we are doing it because our fellow-citizens have not been told enough about or sold sufficiently upon our own American product."

We are among those who believe that the American way of life which has so enriched the world, although now assailed from within and without, may not only be preserved, but enlarged to greater usefulness. But to disregard the portents, to make light of the storm warnings is to shut our eyes to the obvious.

If we are to preserve the ideals which have made America great, that have given us freedom and wealth, industry must be encouraged and success through individual effort emphasized as the road to progress in place of the unworkable theories of paternalistic government. It is a responsibility for each one of us; for every employer and employee, for workers in fields and shops and offices.

The country faces a crisis in foreign and domestic affairs. Democracy is being assailed by forces that aim to overthrow it, and there are in our own borders subversive influences that would tear down and destroy.

Impractical theorists have nearly wrecked the American way which has brought about the greatest progress and comfort ever known in the world. In these latter days large numbers have been fooled into believing society owes them a living and they have failed to consider what they owe society.

It is up to those who recognize these things to become earnest in the effort to put the facts before those who have been heedless of the dangerous course that has been followed. They will thus serve the ones who will suffer most in the destruction that must follow the continuance of the present course.

Regimentation—collectivism—class hatred—are not American. They have been brought from other countries where the initiative and incentive of the individual man is stifled.

OCTOBER 1940



Exclusive

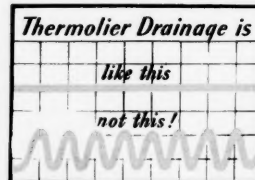
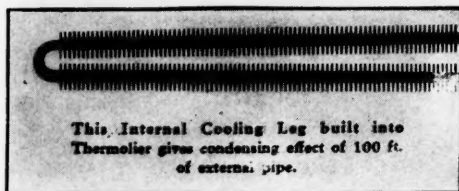
...typifies Thermolier's advanced design!

There's one quick way to tell which unit heater is engineered to give maximum *overall* economy. Find out which one produces continuous "full heat" from all radiating surfaces, in *actual performance*, as well as standard rating tests!

Only Thermolier has the exclusive Internal Cooling Leg that insures *continuous* drainage of condensate . . . *continuous* live-steam radiation from all surfaces. It eliminates intermittent drainage cycles that cause temperature variations and losses in heating efficiency in as much as 1/3 of the heating surface.

This is but one example of original Thermolier features that provide cost-cutting simplicity of installation, fuel-savings up to 27%, and lower maintenance costs. Others include expansion-compensating U-tubes and the same tube-to-header construction used in condensers.

Write for complete Data Book on Thermolier . . . the unit heater so efficiently designed that it has required no changes since its original development! Available in 37 types and sizes. Grinnell Co., Inc., Executive Offices, Providence, Rhode Island. Branch offices in principal cities of the United States and Canada.

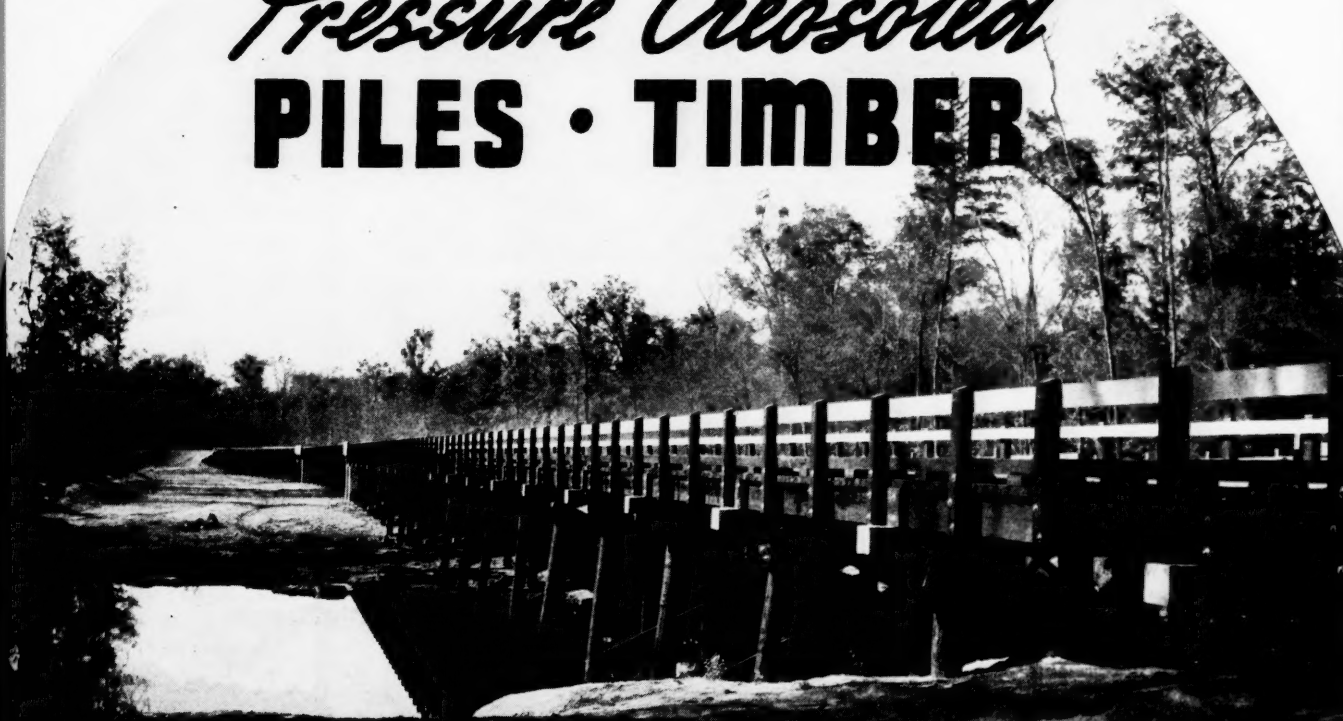


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THE UNIT HEATER WITH 14 POINTS OF SUPERIORITY

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Pressure Creosoted
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UNITED STATES STEEL

MANUFACTURERS RECORD FOR



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ELECTRICAL
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TUBES, BOILER
TURNBUCKLES
VALVES, BLOW-OFF
WELDING ROD and WELDERS
ZEES

The Mark of Quality



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MANUFACTURERS RECORD

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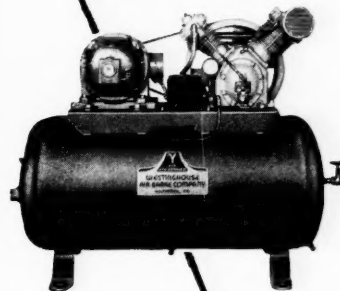
Member A.B.C.

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Compact
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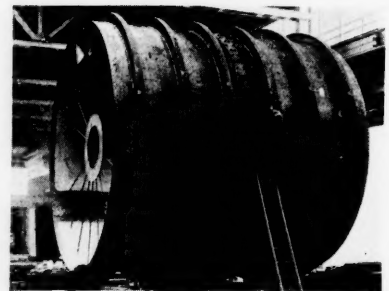
Here is one of the
many types and sizes



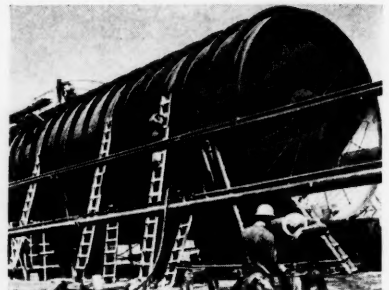
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Compressor

Two-cylinder, two-stage, air-cooled, for continuous operation against 200 lbs. pressure, sizes 3.6 to 41 cu. ft. Controlled combined pressure and splash lubrication. Unloader interlocked with lubricating system to prevent delivery of air when oil supply is depleted. Low power cost. Motors for any commercial circuit. Mounted complete on tank as shown, or on bed plate for sill installation. Catalog 9051. Write for prices.

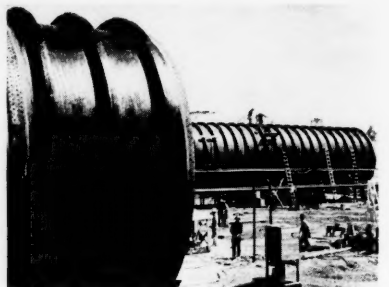
Westinghouse
AIR BRAKE CO.
Industrial Division
PITTSBURGH, PA.



Above, pipe sections being fitted-up and match-marked in our shop. Left, the pipe sections being installed in place at the Dam.



A close-up of the final assembly of the pipe sections into place. The spider rods, installed to keep the rings round, are still in place.



A detail view of the pipe. This pipe has been coated. The re-inforcing rings are heavy curved members.



A general view of the site of Denison Dam showing the large diameter pipe being put in place.

STEEL PIPE... ...by Chicago Bridge

We are equipped to fabricate and supply in desirable lengths, large quantities of welded steel pipe 24 in. in diameter or larger, produced by assembly line methods. We are also in a position to handle special jobs of either welded or riveted construction such as the 20 ft. diameter pipe shown in the accompanying views, being installed at Denison Dam in Texas.

The plates for this pipe are fabricated in our plant, fitted up, match-marked, and taken apart for shipment. The rings are re-assembled in a temporary plant at Denison, riveted and welded in

sections, coated, and delivered to the general contractor for installation.

Shop-built pipe is welded on automatic machines, grit blasted inside and outside simultaneously, and coated on a special pipe coating machine. Lengths up to 60 ft. are fabricated, tested and coated all in one piece.

Our shops are also equipped to build elevated steel tanks; flat bottom storage tanks; cylindrical, spheroidal, and spherical pressure tanks; and other steel plate work of all kinds. Write our nearest office for estimates.

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New York3313-165 Broadway Bldg.
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San Francisco1040 Rialto Bldg.

Philadelphia1619-1700 Walnut Street Bldg.
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Boston1510 Consolidated Gas Bldg.
HavanaEdificio Abreu 402

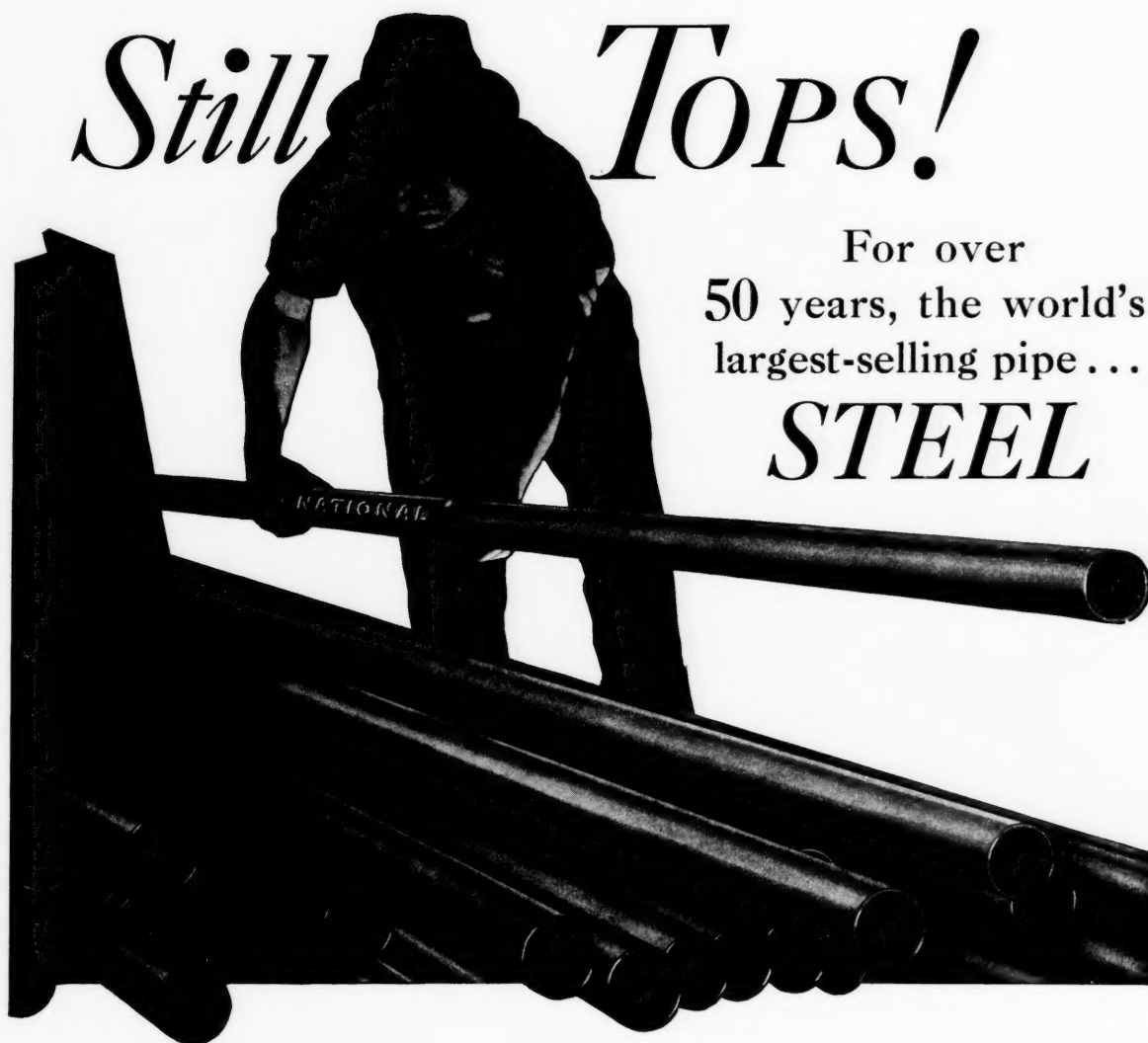
Plants in BIRMINGHAM, CHICAGO and GREENVILLE, PA.

B-779

Still *Tops!*

For over
50 years, the world's
largest-selling pipe...

STEEL



FIFTY years ago, steel pipe was standard. Today, after half a century of service with plumbing and heating contractors, builders and architects, steel pipe is still the industry's standard. The world's largest-selling pipe.

Have you ever thought about what this consistent leadership means? Simply this—that steel pipe has always given builders the greatest service per dollar of cost for all-round use in all types of buildings. It means that no other pipe has ever been able to

offer greater value in strength, durability, and ease of installation at low cost.

Today's standard, NATIONAL Steel Pipe, though still fundamentally the same pipe that won the industry's confidence fifty years ago, is vastly improved to meet the requirements of modern heating, plumbing, and ventilating systems. It is uniform and ductile, easy to bend or coil, and readily installed. It easily takes sharp, accurate threads. It is clean, free of scale, and has a smooth surface for

paints or decorative coatings.

NATIONAL Steel Pipe today gives you more than ever before. Use it for all standard piping applications. It will give you greatest service per dollar of cost.

FOR EXPOSED PIPING

NATIONAL Copper Steel Pipe is recommended for soil, waste and vent lines, and other piping exposed to atmospheric conditions. A small percentage of copper added to the steel more than doubles the resistance of this pipe to alternate wetting and drying. Its extra cost is trivial when compared to the extra service it gives under these conditions.

NATIONAL TUBE COMPANY

PITTSBURGH, PA.



Columbia Steel Company, San Francisco, Pacific Coast Distributors • United States Steel Export Company, New York

UNITED STATES STEEL

OCTOBER NINETEEN FORTY

7



Let's drive over to the County Seat to watch the train come in

Not many years ago the Saturday arrival of the 4:15 was an event that drew sightseers for miles around.

And a show it was, this fire-eater grunting down the rails towing a day coach and a few box cars. This was the first scene of an All-American drama that has progressed well into the second act.

In the South today, lightning-like streamliners and fast freights carry their loads to thousands of hamlets that never dreamed of railroad service in the old days. No longer a novelty, modern high speed transportation is the accepted thing. Smooth highways and safe airlines augment these facilities through the South.

Bethlehem has had a part in supplying steel for Southern transportation: steel rails, frogs and switches, boiler and firebox plate, wheels and axles, plates for car building, structural shapes for bridges, stations and buildings, reinforcing steel for concrete work and steel for practically every phase of railroad construction. With sales offices throughout the South, warehouses at Houston, Texas; Savannah, Ga. and Bristol, Tenn., and a tidewater plant at Sparrows Point, Maryland, Bethlehem is in a position to furnish the necessary steel materials for the maintenance and growth of this great Southern industry.

BETHLEHEM STEEL COMPANY



W. P. HUGHES

Former Chairman, Pacific Northwest
Section, A.W.W.A., and City Engineer of
LEWISTON, IDAHO

writes: "During the past 16 years in connection with an extensive paving program the City of Lewiston has replaced 100 per cent of their water mains with 12 inch lineal feet of cast iron pipe from 12 inch diameter. The system is operating at a maximum pressure of 90 pounds and the maintenance cost on the 29 miles of iron pipe laid has amounted to less than 75 cents per mile per year."

W.P. Hughes



LOW MAINTENANCE

is an economy factor in cast iron pipe that is usual, rather than exceptional, in water works experience. An impartial survey among nearly 200 water works superintendents shows that the maintenance cost of cast iron pipe is far below that of any other pipe material which has been in use long enough for the recording of conclusive data.



LONG LIFE Unretouched photograph of a section of original cast iron water main now in its 101st year of continuous service in Detroit, Michigan. Long life is but one of the economy factors of cast iron pipe.



SALVAGE VALUE

Unretouched photograph of 8-inch cast iron pipe laid in 1884 and recently salvaged and relocated in Hopkinton, Mass. Salvage value is one of the 3 economy factors of cast iron pipe.

CAST IRON Look for the "Q-Check" registered trade mark. Cast iron pipe is made in sizes from 1 1/4 to 84 inches.

AMERICAN PIPE RESEARCH ASSOCIATION, THOMAS F. WOLFE, RESEARCH ENGINEER, 1015 PEOPLES GAS BUILDING, CHICAGO, ILLINOIS

CAST IRON PIPE

SAVER NO. 1

Economical steel deck construction adds 45,000 seats to Tulane Stadium



TULANE STADIUM New Orleans, La. Total seating cap. 70,000. Taken during Texas A. & M.-Tulane game Jan. 1, 1940. Extensions to Tulane stadium built by Doullitt & Ewin, Inc., Gen. Contrs. Jens Braae-Jensen, Sr. Engineer. Herbert A. Benson, Architect, New Orleans, using Virginia Bridge steel-deck construction.

THE 72,000 spectators who witnessed the Texas Aggies-Tulane game will not soon forget the spectacular performance of big John Kimbrough, the Aggies' great fullback, who by sheer power led his team to a 14-13 victory over the mighty Green Wave. Neither will they forget Tulane's great stadium—built just right for the greatest comfort and convenience of the

spectator. And the owners will remember the economy in both time and money by using Virginia Bridge steel-deck construction for the 45,000 seats added in the 1938 and 1939 extensions—the ease and speed of erection—the advantages of our watertight construction for the double-deck sections, and the many other desirable features obtained in steel-deck construction at

minimum cost.

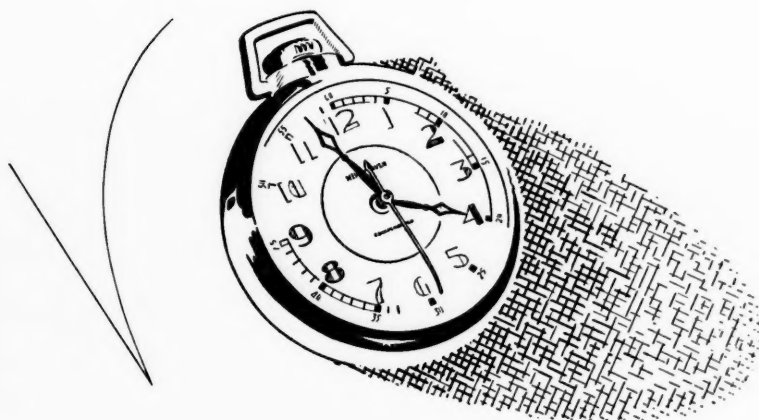
Virginia Bridge steel-deck construction for stadium or grandstand provides maximum seating capacity at minimum cost. Our steel-deck construction is easy to erect, easy to extend, is adaptable to any local requirement, and will last indefinitely if given an occasional coat of paint—the only maintenance required.

VIRGINIA BRIDGE COMPANY

Roanoke • Birmingham • Memphis • Atlanta • New York • Dallas



UNITED STATES STEEL



ON THE OTHER HAND, THERE WAS TOO MUCH WEIGHT

THE WORKS in a watch has work to do, like any other engine.

Pushing a sweep second hand around the dial at precisely 1 RPM is, relatively, as heavy work as you do when you push a lawn roller.

When you want to ease up on that job, you let the water out.

When the maker of this watch found that an ordinary second hand was too heavy, he got rid of the excess weight by making the hand of Alcoa Aluminum. As an added attraction, he colored it by the Alumilite* process.

The very fact that this watchmaker got results by throwing off a *mere fraction* of an ounce, underscores the importance of saving weight in pounds and tons.

Excess weight is a drag on power that has no business in modern business, modern machines, modern economy.

Excess weight slows down speed, cuts down efficiency, mows down profits.

Nature made Aluminum light. We make Alcoa Aluminum Alloys strong, to use wherever weight should be saved. Aluminum Company of America, 2109 Gulf Building, Pittsburgh, Pennsylvania.

*Patented



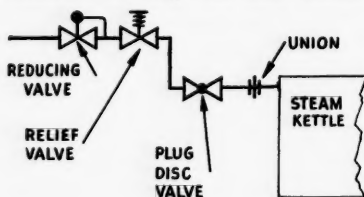
ALCOA · ALUMINUM

OCTOBER NINETEEN FORTY



HERE'S how the chef in a mid-western hospital discovered something about valves that is significant to any plant with extensive piping. The chef raised the lid of a steam kettle ready to dish up a savory beef stew. Instead, he found a badly scorched mess.

By his clock he knew that it had not cooked too long—the heat should



have been constant—but something had happened—something beyond his control.

The engineer of the hospital diagnosed the trouble thus: "Pressure regulator's gone blooey," he stated. "Look at the sediment in this reducing valve. If you had that much junk inside of you, you would fail, too."

When W. F. C., the Crane Represent-

ative, appeared in response to a telephone call, he quickly found the answer. Obviously, simply cleaning the regulator was asking for more trouble later—Preventive Maintenance dictated some form of protection for the kettle to prevent extreme temperature from ruining more food.

The answer was simple—see the hookup at left. A Crane relief valve, placed on the low pressure side of the pressure reducing valve, gave assurance that in the future, failure of the pressure regulator would not result in further disaster to beef stews.

RESULTS: (1) No more danger of uncontrolled steam under high pressure reaching the cooking kettles. (2) One more user of valves and fittings has learned that Preventive Maintenance prevents further trouble from valves by recommending the correct valve of the correct materials in the correct hookup. (3) Another valve user has found that he can be assured sound advice on piping problems by calling the Crane Representative.

This case is based on an actual experience of a Crane Representative in our Kansas City Branch.

YOUR PLANT IS SAFER WITH CRANE RELIEF VALVES

You may never have occasion to worry over scorching a beef stew, but in your plant—in fact, in almost every plant—the judicious application of relief valves on pipe lines will prevent many maintenance problems from becoming serious—save many dollars in time lost or material destroyed, as well.

Crane relief valves are made in brass, iron and steel—designed to control air, gas, water or steam. Available in sizes from $\frac{1}{8}$ " to 5" to meet every requirement where a relief valve may be necessary.



CRANE

CRANE CO., GENERAL OFFICES:
836 S. MICHIGAN AVE., CHICAGO
VALVES • FITTINGS • PIPE
PLUMBING • HEATING • PUMPS

NATION-WIDE SERVICE THROUGH BRANCHES AND WHOLESALERS IN ALL MARKETS

One afloat . . . One launching One on the ways



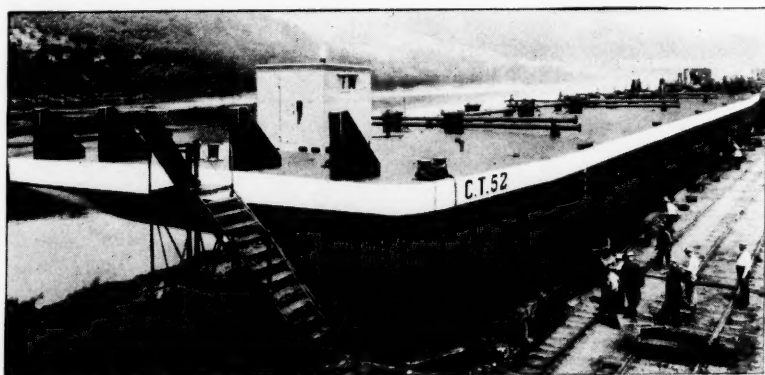
*Completing the
largest, modern, all-
welded oil carriers to
ply inland waters*

THESE three modern barges join the nearly two thousand craft of all types that have been launched at our Ambridge Ways on the Ohio River.

Designed and built for the Campbell Transportation Company, each barge has a capacity rating of 16,850 barrels of oil on draft of 8 feet, 1 inch; measures 240 x 50 x 10½ feet.

They are individually equipped with a most modern and efficient piping and pumping system, devised to fill or empty, separately, any of the 14 cargo compartments into which each barge is divided. Pump supporting frames are sturdily constructed to withstand impact and vibrations imposed by the powerful pumping equipment, the capacity of which is 1000 barrels per hour — capable of discharging the entire cargo in about 17 hours.

American Bridge Company has been designing and building barges since 1903. Our special Barge Department, with ample construction facilities, and a technical personnel of 37 years of accumulated experience, is at your service, whatever the type of your requirement — barge, dredge, scow, lighter.



AMERICAN BRIDGE COMPANY

General Offices: Frick Building, Pittsburgh, Pa.



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UNITED STATES STEEL

4★

great factors in p

MEN, METAL, MACHINE



White hot ingots and billets to be rolled... rolls to be ground. ● Machine tools to be built... parts to be ground to precise tolerances. ● Ordnance to be rushed... again grinding wheels and grinding methods. ● Airplanes, and tanks, motors and engines... with their thousands of interchangeable parts, they just couldn't be turned out with such speed and accuracy except by grinding. ● Tools to be produced... reamers, cutters, drills and turning tools for the fabrication of tons upon tons of metals... all are ground, shaped, conditioned with grinding wheels by Carborundum.

Paralleling the markets and uses for all metals, the grinding wheels, polishing grains and metal finishing coated abrasives made by Carborundum are found in all industry.

And the resources and constant research of The Carborundum Company... through its great producing plants, branch sales offices and warehouses... through its staff of trained engineers... continue to make important contributions in all industry towards higher production and greater precision.

Why not consider designing for grinding, in the interests of speed, production and accuracy? Any of our trained representatives will gladly work with you toward these ends.

preparing for peace

AND ABRASIVES BY CARBORUNDUM



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TRADE A BRAND OF THE
ABRASIVE PRODUCTS



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(Carborundum is a registered trade-mark of and indicates manufacture by The Carborundum Co.)

THE CARBORUNDUM COMPANY, NIAGARA FALLS, N. Y.

INDUSTRIAL DEPARTMENT • SEABOARD AIR LINE RAILWAY

SHORT CUT *to* FACTS

It is true that the South possesses outstanding advantages for manufacturing. This is evidenced by the tremendous industrial growth which has taken place in this area in recent years. However, not all communities in the South offer equal advantages for industry.

The South embraces an enormous area, with a wide variety of conditions. In this area, as elsewhere, a plant location is good or bad, depending upon whether it meets the requirements of the enterprise. In selecting a plant location, the correlation of available facts and their application to a specific enterprise require the services of an organization experienced in this type of work.

WE KNOW THE GOOD PLANT LOCATIONS

For many years we have made a careful study of this territory, during which time we have accumulated a great amount of information on plant sites, natural resources and manufacturing conditions. To responsible clients we offer an experienced and competent plant location service without cost or obligation. If some other state, or some community not served by our Line will best meet your requirements, we will frankly tell you so. In our dealings of many years we have made it our practice to adopt the industry viewpoint.

We cordially invite you to communicate with us with reference to your plant location problems. Ask us for detailed studies of suitable locations for your business in the Seaboard Southeast.

WARREN T. WHITE, GENERAL INDUSTRIAL AGENT,
SEABOARD AIR LINE RAILWAY, NORFOLK, VIRGINIA

FREE!

INDUSTRIAL
DEPARTMENT

SEABOARD

AIR LINE
RAILWAY



A RESOLUTION

WHEREAS, The Southern Governors' Conference acknowledges and unanimously commends the fine appreciation President Roosevelt has repeatedly expressed of the necessity of locating a substantial portion of war industries plants in secure and defensible areas of the Nation and further for his understanding of the merits of de-centralization and the utilization of the facilities of all areas of the Nation for the long range development and permanent prosperity of all parts of the country, all of which are characteristic of his great vision; and,

WHEREAS, The Conference, heartened by this attitude of the President, many months ago constituted a special Southwide Regional Defense Committee to work with the National Defense Council to furnish authentic information helpful in making such locations, which Committee was specifically instructed that it was the position of the Conference that locations should be made strictly on the basis of the best interest of the National Defense, without regard to political subdivisions or community pressure and this Committee has been working strictly along this purely patriotic approach; and,

WHEREAS, The National Defense Council has evidenced its approval of the action of the Conference and has shown its desire to cooperate with it in such a patriotic approach by appointing the Honorable Frank Bane to act as liaison representative between the Conference's Committee and similar state organizations in other sections and the National Defense Council; and,

WHEREAS, Despite this public position of the President and the apparent action of the Defense Council to cooperate with the Committee, this Conference has the distinct feeling, based on a careful and reasonable study of the operation of the National Defense Program up to date, that under the slogan of "greatest speed" the long range benefits to the whole Nation for both present and post-emergency benefits are being pushed into the background, with the result that the expressed wishes of the President and the program of the National Defense Council of secure and defensible locations over the entire Nation are being hindered and impeded; and,

WHEREAS, The Conference further feels that, under this slogan of "greatest speed," which it fully recognizes as essential to the immediate re-armament program, this and other areas of the Nation, are being deprived of certain developments necessary for the future well being of the Nation, and still further concentrations of industry are being accentuated to the future detriment of our Nation as a whole, and to certain areas in particular,

BE IT THEREFORE RESOLVED, That the Southern Governors' Conference deplores this trend in the expansion of war industries, particularly as it applies to new plants and new developments and the apparent lack of a proper appreciation of the advisability of de-centralization on a long range future program; and,

FURTHER, That the Southern Governors' Conference formally calls to the attention of the President and the National Defense Council the feeling of the Conference on this vital subject and reaffirms its position and its expressed desire to cooperate in this crucial undertaking strictly on the basis of national need and the greatest general benefit for the future.

E. D. RIVERS, Chairman

September 17, 1940
Dauphin Island, Alabama

Southern Governors' Conference

Bona Allen Building, Atlanta, Georgia

LAWRENCE WOOD ROBERT, JR.
Executive Director

CARROLL DOWNES
Industrial Consultant



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Chairman



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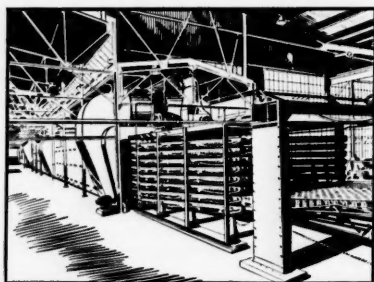
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Industry is decentralizing southward to a friendlier atmosphere. Move to the Gulf South where you are wanted and appreciated by your neighbors.

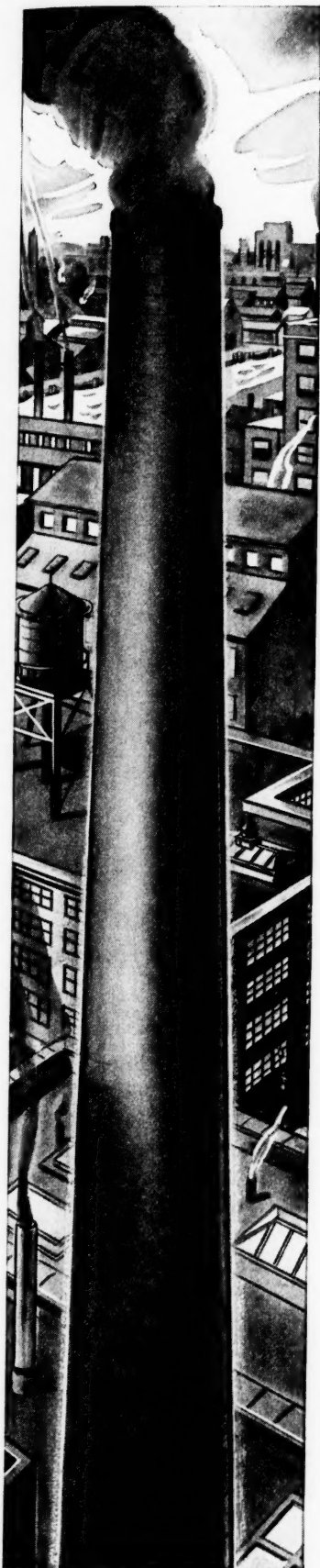
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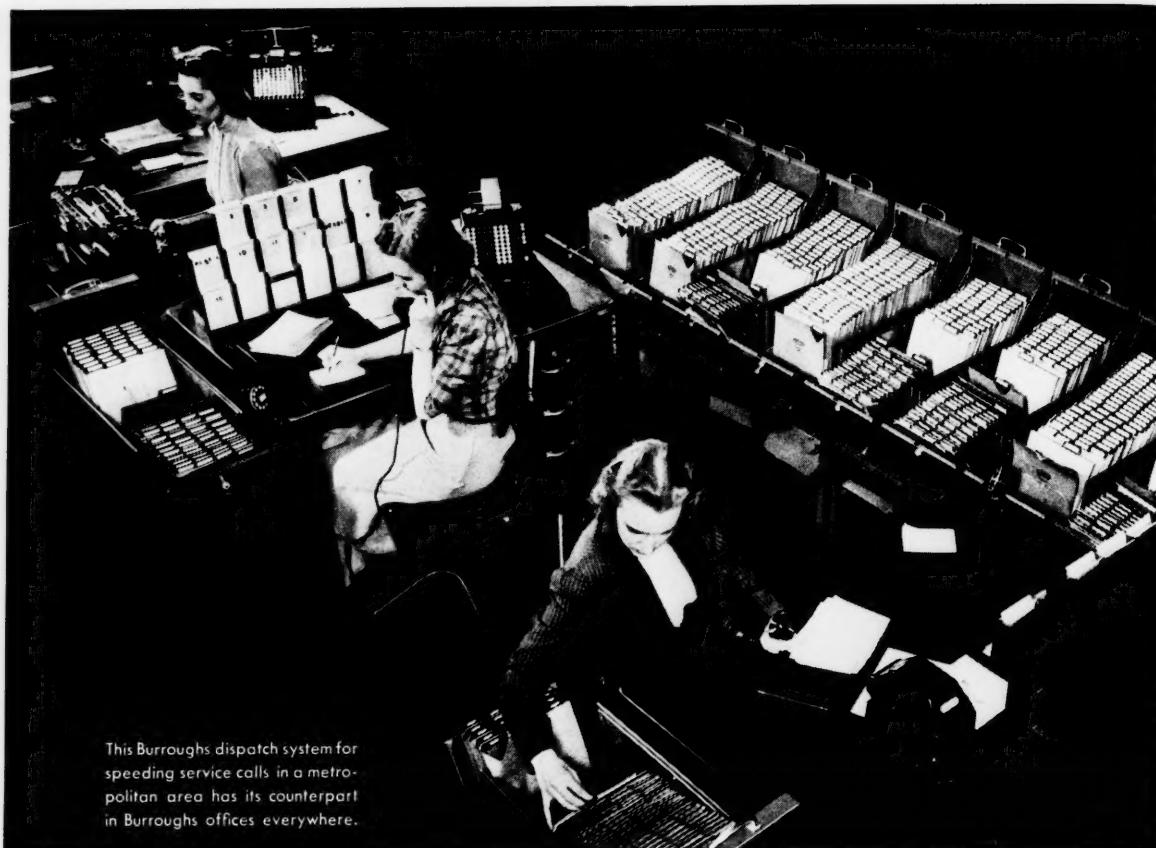
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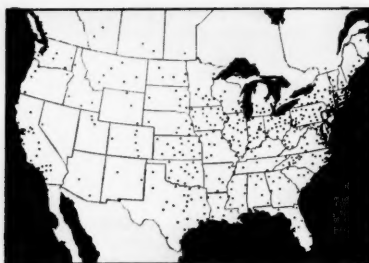
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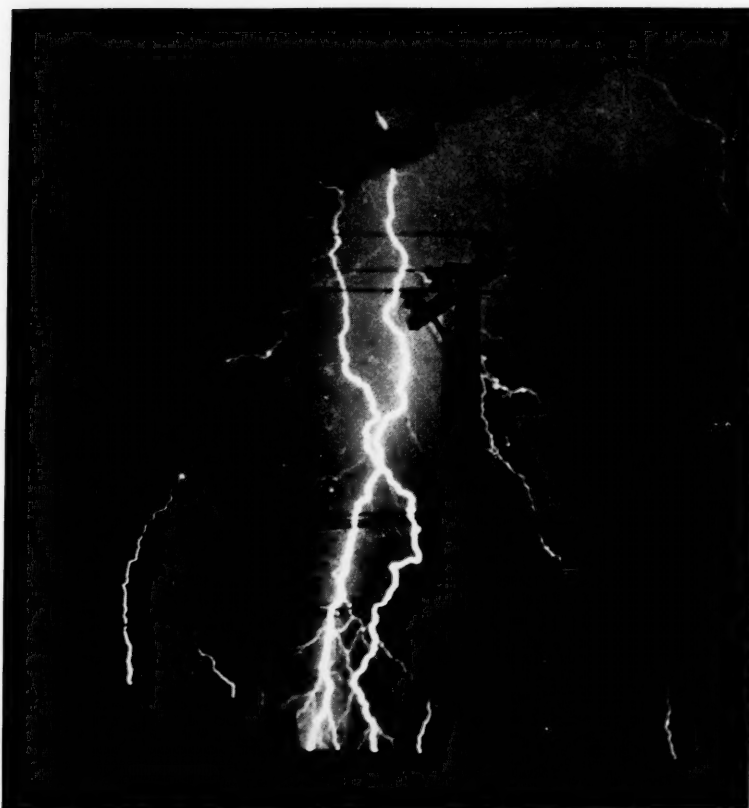
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DOES THE WORK IN LESS TIME—WITH LESS EFFORT—AT LESS COST

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**WE'VE BEEN IN
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New words these days—but an old
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On the home defense front we've been at war with lightning for years . . . lightning, tornadoes, sleet and all the elements that would interrupt continuous service to industrial workers, shops, farms, homes and communities.

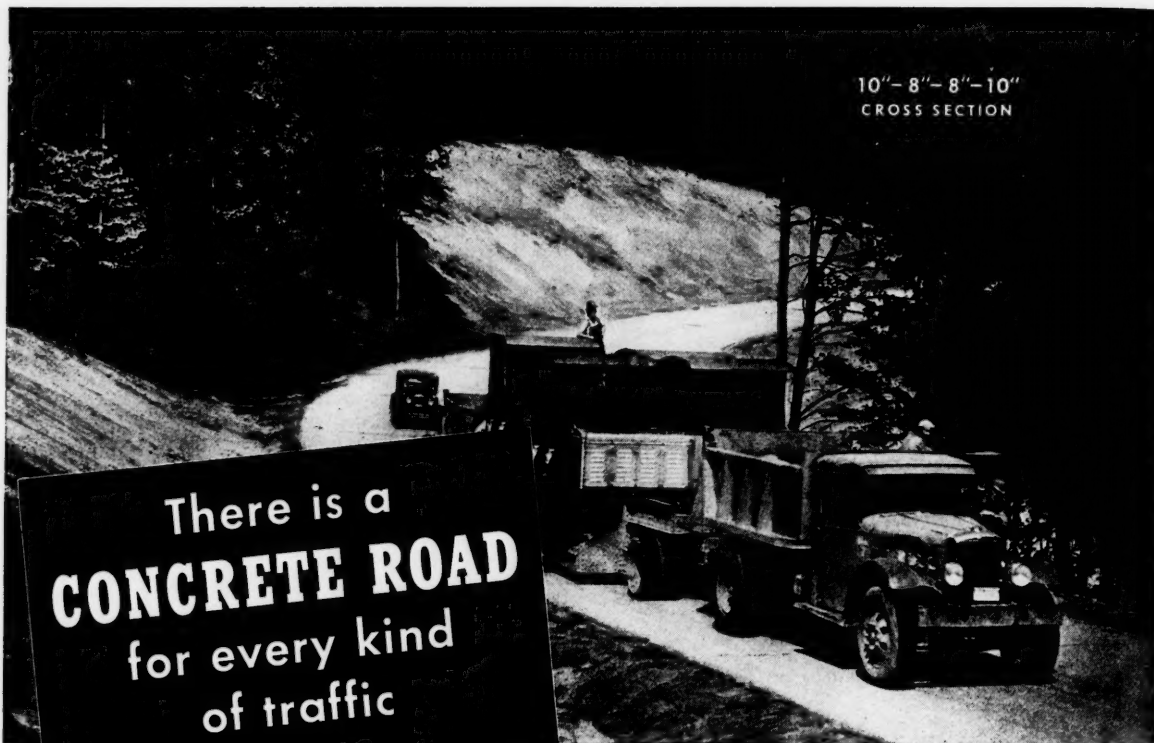
Our work never stops. Improving, strengthening, renewing, redesigning, rebuilding, putting scientific advances into the physical facilities of

daily service . . . these are the munitions of preparedness that enter into the budgets of every year. As a result, reliability is the order of the day; capacity and reserves are a matter of continued advance preparation.

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Above: Route 71 (Norris Freeway) in Anderson County, Tenn. Built heavy to carry thousands of massive trucks and machinery trailers during construction of Norris Dam.

Left: Tennessee Route 15, Lincoln County; Route 15, Franklin County; Route 18, Madison County.

DESIGN CONCRETE ROADS TO FIT THE LOADS

Four examples from Tennessee

These Tennessee state roads illustrate the adaptability of concrete pavement to a wide range of traffic conditions. Each road has a balanced cross-section, designed to carry the anticipated volume and weight of traffic.

For *your* roads—whether lightly traveled secondaries, through highways, or heavy-duty metropolitan routes—concrete can be designed efficiently to provide safe, satisfactory transportation at low annual cost.

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Dept. 10-21, 33 W. Grand Ave., Chicago, Ill.

*A national organization to improve and extend the uses of concrete
... through scientific research and engineering field work*

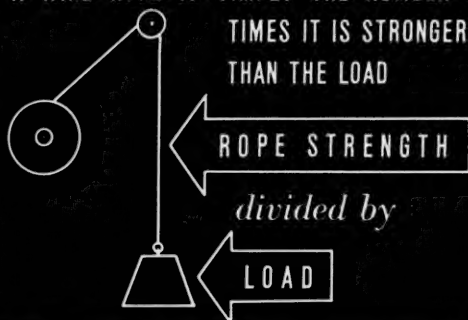
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Of course

YOU KNOW HOW TO FIGURE FACTOR OF SAFETY



EXPRESSED ELEMENTALLY—THE SAFETY FACTOR
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But—

Adequate Safety for a
specific installation can
be determined only by
considering all these Vital
Factors:—

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- ✓ DECELERATION
- ✓ LENGTH OF ROPE
- ✓ SPEED
- ✓ ATTACHMENTS
- ✓ REEVING CONDITIONS
- ✓ DRUM CONDITIONS
- ✓ CORROSION
- ✓ ABRASION
- ✓ PROTECTION AGAINST
PRODUCTION DELAYS
AND ACCIDENTS
- ✓✓ CONSTRUCTION AND
QUALITY OF WIRE ROPE

As a user of wire rope, you want to
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your wire rope—and, at the same
time, guard against premature failure,
accidents, production delays. In other
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We would like to be able to say,
"Just take your dead load and mul-
tiply it by such and such a safety
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From our experience of many years
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that in order to determine Adequate
Safety for a specific wire rope in-
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also all other possible load stresses,
such as those created by the factors
listed to the right. In addition, al-
lowance must be made for other
factors, such as the degree of pro-
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Wire rope specifications, carefully
worked out on this basis for indi-
vidual installations, pay many times
over in longer rope life and in-
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come an opportunity to cooperate
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JOHN A. ROEBLING'S SONS CO.
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*This advertisement is published in the interest of all wire rope
users, to help them obtain greater safety, service and efficiency
from their wire rope.*

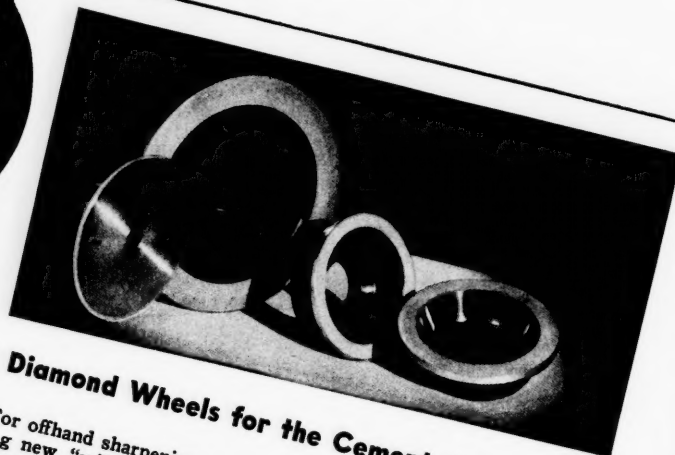
ROEBLING

Ⓜ Wire Rope



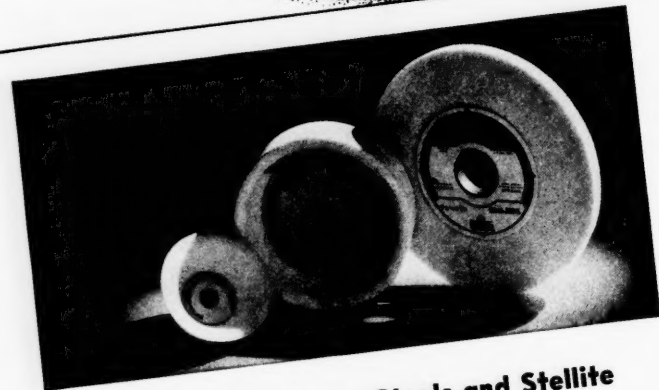
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B-E Bond Wheels for Steels and Stellite

Combining the fast, cool cutting action of 38 Alundum abrasive with the strength, stability and uniformity of the patented "B-E" bond gives a wheel that is an outstanding favorite in tool rooms everywhere for grinding high speed steels and cutting metals such as Stellite. Users report that they are able to get extra production and longer wheel life without the danger of burning the most heat-sensitive tool steels. Exceptional ability to hold its shape and require few dressings is another feature of the B-E bond tool wheel. No matter what types of cutting tools you are using, Norton engineers are ready to study your tool room jobs and provide the proper wheels.

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THE SOUTH AND NATIONAL DEFENSE

By virtue of its vast mineral wealth—and the South is richer in natural resources than any other section of the country—the strategic protection it affords, its developed industrial facilities, and its native American population, the South is prepared to take an important part in the National Defense Program.

There is abundant evidence that so far, for reasons largely political, the South has not been allowed to take the part of which it is capable in supplying defense needs. As a result, unfortunately both the Nation and the South suffer. We have pointed out before the challenge to democracy in the vital problem of building an adequate national defense—the danger of playing politics and the unnecessary delays caused by confusion and inefficiencies in Washington.

The Governors of eleven Southern states in Conference at Mobile, Alabama, last month went on record that, "This Conference has the distinct feeling, based on a careful and reasonable study of the operation of the National Defense Program up to date that under the slogan of 'greatest speed' the long range benefits to the whole Nation for both present and post-emergency benefits are being pushed into the background. * * * The Southern Governors' Conference deplors this trend in the expansion of war industries particularly as it applies to new plants and new developments and the apparent lack of a proper appreciation of the advisability of de-centralization."

The National Defense Advisory Commission recently laid down twelve principles for awarding the billions of dollars of defense contracts as follows: *speed, quality, price, geographical distribution of orders, avoidance of transportation congestion, available power facilities, labor standards and supply, effect on civilian consumers, financial responsibility of contractors, their past experience on the Army's "educational orders," their moral re-*

sponsibility and maintenance of competitive bidding on contracts wherever possible. The italics are ours.

It was recognized that while making use of all existing facilities in whatever part of the country they might be located, numbers of new plants would be necessary and these were to be geographically distributed for decentralization and according to the best available facilities above mentioned.

That the South has these facilities and is prepared to lend the utmost cooperation in carrying out the objective of speed in the present emergency, is beyond question.

Some delay doubtless has been unavoidable. The program is vast and with many angles, but the information should be at hand from the investigation made two or three years ago by a previous Commission as to plant capacity and facilities. In the time that has already elapsed since the defense effort was decided upon, there must have been time to determine what new plants are necessary and for what particular kind of work. This question confronting the authorities it would seem inevitably would lead to prompter decisions to locate plants where the raw materials, the labor, power and necessary conditions are to be found.

The South is ready, willing and able to take a far more active part in the Program of National Defense and it is important for those in Washington charged with the responsibility of this program to take the South's facilities into full account.

The South has nearly 20% of the country's manufacturing plant capacity but has received far less than 20% of the rearmament orders. In the iron and steel industry alone, according to the 1938 census figures, the South produced 20% of the country's pig iron and 17% of hot rolled iron and steel, while in structural and ornamental steel work in 1937 total production was above 18% of the total of the United States.

Amend Labor Relations Act—

As a result of the hearings before the Smith Committee, certain obviously desirable changes in the National Labor Relations Act were brought before Congress. They were pushed aside with the excuse that Congress was getting ready to adjourn and there wasn't sufficient time to act upon the glaring defects in an Act that has been a major cause of the distrust and loss of confidence which has been holding normal business activity back for years.

To any one familiar with its terms, it is no wonder it rankles in the minds of business men as legislation that puts them in the position of presumable culprits judged in advance of trial. Space does not permit going into the mass of testimony before local boards and the National Labor Relations Board at Washington, with employers protesting against what appeared too often as one-sided proceedings.

The Smith Committee brought clearly to light the evil done by local boards when N. L. R. B. lawyers acted not as impartial investigators, but both as judge and jury and even as advocates of complaints which would have been thrown out of any court of justice.

Be it said of the N. L. R. B., it has had to administer a law most difficult of administration. This does not overlook its own inadequacy due to internal dissensions, nor does it offer any explanation for the employment of a string of half-baked, inexperienced, so-called lawyers to act as representatives in circumstances that many times affected the life of important private industries.

While the Smith Committee threw a spotlight on an alarming state of affairs, the remark attributed to a member of the N. L. R. B. to the effect that by the Act's terms "the Board must proceed as a prosecuting attorney" is worth noting.

One may read the National Labor Relations Act in vain for any word or thought that any wrong is ever done by employees. All the warnings—all the commands—all the punishment for failure to perform, whatever it may be, is directed to employers. And yet the declared purpose of its sponsor was to promote harmony in industrial relations.

Now that Congress feels it is unwise to adjourn in the face of domestic and world conditions, there is ample reason again to direct attention to what Congressman Smith and his associates on the Committee, after weeks of painstaking investigation, have decided are necessary changes in a law that is an aggravation. If Congress wants to promote business confidence and increase employment, it well may give immediate thought to a pressing need.

Two recent decisions of the National Labor Relations Board show anew, as the *Journal of Com-*

merce says, the weak status given employers by the Wagner Act. They undoubtedly add to the force of the contention that the statute itself must be reformed if industrial relations in this country are to be restored to an equitable basis.

One of the decisions mentioned was the case of the General Shale Products Co. of Tennessee, in which it was decided by the Board that the employer violated the law by discharging employees who, on being questioned, expressed dissatisfaction with the company's overtime system. The other case was that of the M. F. A. Milling Co. of Missouri, in which employees had been discharged after filing individual law suits against the company under the Missouri statute penalizing employers for reducing wages without notice to employees. These discharges were held to violate the Wagner Act.

While the Act itself does not prohibit the discharge of employees for individual acts not related to collective bargaining, the Labor Board held in these cases that the actions of the employees which led to their discharge constituted "concerted activity" and therefore the discharges violated the Act. Section 7 of the Act was cited. This provides that "employees shall have the right to self organization and to engage in concerted activities, for the purpose of collective bargaining or other mutual aid or protection."

In recounting this, the *Journal of Commerce* observes: "The National Labor Relations Board has now defined such 'concerted activity' so broadly as to comprise statements made by several individual workers to an employer. This trend in the reasoning of the Labor Board, if carried to its logical conclusion, could so restrict an employer's ability to discharge employees as virtually to eliminate that power, thus undermining the basis for industrial discipline."

Government Sets Coal Prices

The Guffey Bituminous Coal Act, effective October 1, is regarded as an unworkable measure by a large proportion of those engaged in the bituminous coal industry. There is likely to be a bewildering array of prices set by government for different parts of the country for different conditions, and according to those in a position to know this may stretch out into a list of several hundred thousand items, thus adding greatly to the difficulties of conducting business.

It is estimated that bituminous coal consumers will be compelled to pay from \$40,000,000 to \$60,000,000 more for their fuel. Coming at the beginning of winter this will prove a hardship, and coal operators point out this increased price will stimulate the trend to competitive fuels with the result of helping neither coal miners nor coal producers.

While the bill was passed ostensibly for the purpose of improving the coal industry's position, there is a large question in the minds of those engaged in that industry as to whether they can continue to do business under the terms of the Act. The government thus undertakes the job of imposing regulation upon another industry, and will dictate prices at which the product may be sold in all parts of the United States.

The charge is made by J. A. Howe, Chicago, Chairman of a producers committee which wants amendments to the Act, that while "the legislation was passed approximately three and a half years ago, the Department of the Interior has just now arrived at the enforcement of its major provision." In his opinion, "the central purpose of the legislation—the improvement of the coal industry—will not be achieved. What the industry requires is not paternalistic control by government, but encouragement and a chance to work out its own future."

He cites the fact that \$8,000,000 to \$10,000,000 has been collected in the form of a tax on bituminous coal in order to cover the administrative cost of the Act, and besides this \$4,000,000 to \$5,000,000 have been assessed for the district boards that work with the commission. A burden of time and money has been imposed, according to Mr. Howe, "in cooperating with district boards during all this period, with the result that most coal company executives have been diverted from mining and plunged for three and a half years in governmental relations work." Exhaustive data preparation, questionnaires, legal and accounting fees, hearings, etc. have all taken their toll.

The dictation of prices for this industry follows other measures which regulate the hours of labor and minimum wages to be paid in all industries. Free enterprise and initiative can hardly find encouragement toward greater efforts in development of the country's resources while they face such impositions which, in the opinion of most business men, indicate a marked tendency to proceed down the wrong road to the left.

It Looks Like Politics

An appropriation of \$10,000,000 has just been made available to train WPA workers for defense industries.

Two months ago the MANUFACTURERS RECORD took the position that "it is only logical and right that before men are drafted from private industry for active military service, that the CCC should be taken into the Army, and men physically qualified on Federal work relief rolls should be given the choice of finding private employment or of enlisting in either the Army or Navy." This will save cost to taxpayers and leave necessary labor in productive enterprise.

Now it is proposed to increase the tax load with

doubtful benefit—by only \$10,000,000 it is true—a negligible amount in the light of other Government expenditures, but instead of increasing it the load could be materially lightened by drafting first for the Army and Navy, the unemployed and those on public relief rolls.

If this move is designed to train men now on WPA so that they can replace experienced men drafted from the ranks of private industry, or if these WPA workers are given an opportunity for industrial training with attendant exemption from service in time of war, it is grossly unfair. It is illogical, to say the least, to draw the Army's needed man power from productive enterprises when there are so many on relief. The whole thing smacks of rotten politics.

The need for WPA has always been questionable, and its administration, particularly at election time, has left much to be desired. With the possibility of still further abuses indicated, involving the jobs and lives of men who have earned their own way and have asked no favors of Government, this seems to be as good a time as any to abolish WPA and all other forms of work relief.

Leonor F. Loree

Leonor F. Loree died last month at the age of 82, and America is poorer in the passing of this railroad pioneer and outstanding citizen. As an individualist of tremendous courage and foresight, he accomplished results in the handling of huge financial transactions in the railroad field that startled even the giants of a day that saw big deals.

He coupled with his financial genius a painstaking, practical handling of his properties that made them pay. It was impossible for anyone knowing the man not to be impressed by his tremendous intellectual force and clear grasp of problems affecting the country's welfare.

Courageous under all circumstances, his success was obtained under conditions of intense, competitive rivalry. His life was full of activity and yet there was always time to listen closely to a new idea whether it pertained to the improvement of a locomotive's efficiency, or a larger economic thought designed for the public good.

Along with Vanderbilt, Huntington, Hill and Harriman, L. F. Loree has a prominent place in the transportation hall of fame. His work as he saw it and carried it out effectively, was to help in developing the nation, and as always with such men risks were not a deterrent.

The South owes an everlasting debt of credit to Spencer, Plant, Morgan, Flagler, Yoakum, Walters, Smith, and other railroad adventurers of a former day, and likewise the memory of Loree will remain with those who value the dauntlessness and intrepidity of creative genius.

THE 1940 POPULATION OF THE SOUTH

THE total population of the South is 45,102,271, according to the preliminary summary of the 1940 Census. This is an increase of 3,853,651 since the census of 1930, or a gain of 9.3 per cent compared to a gain of only 5.1 per cent for the rest of the country. In actual numbers the rest of the country showed a gain of less than 1,000,000 more than the South. Individual Southern states increased their population from a low of 4 per cent for Missouri to a high of 28.6 per cent for Florida. The District of Columbia increased 36.2 per cent. No state in the union had a higher increase than Florida and the lowest position now occupied by any Southern state is Maryland, occupying 28th place.

Of the 92 cities in the country having 100,000 inhabitants or more, 24 are located in the South. All but one of these disclosed an increase ranging from .1 per cent for Kansas City, to 54.4 per cent for Miami. In sharp contrast to this record for the South is the fact that of 68 cities in other parts of the country with a population of 100,000 or more, 28 suffered a decline ranging from .1 per cent to as much as 5 per cent while the number that showed a gain was only 40.

The decline of agriculture during the past 10 years undoubtedly has had a marked effect upon the movement of county populations and in this respect the South is no exception. At the same time, the almost phenomenal development of industry in the South has had a distinct bearing upon this movement.

In Alabama the population of 48 counties increased from a fraction of 1 per cent to as high as 30.7 per cent. Fourteen cities in Alabama are listed as having a population of 10,000 or more. Every one of these showed an increase ranging from 1.7 per cent in the case of Birmingham to as much as 54 per cent in Gadsden.

In Arkansas 49 counties showed an increase ranging as high as 24.5 per cent. This is in striking contrast to the change that took place between 1920 and 1930 when only 30 counties increased their population and 44 suffered a decline, in at least one case amounting to as much as 22.3 per cent. Eight Arkansas cities are listed as having a population of 10,000 or more with seven of them showing an increase varying from 2.4 per cent for Pine Bluff to 16.3 per cent for Fort Smith.

Florida contains perhaps the most startling figures of any state in the Nation. Fifty-one counties showed an increase varying from .1 per cent to as much as 117.7 per cent. Seven counties

have an increase exceeding 50 per cent. The same story is apparent concerning Florida cities of 10,000 or more population. There are 19 of these and 18 had an increase ranging from .2 per cent for Key West, to a high of 321 per cent for Miami Beach. Fort Lauderdale and Panama City each more than doubled their population with 103.6 per cent and 114.4 per cent respectively. Miami and Tallahassee both increased more than 50 per cent.

Almost every state increased its population more between 1920 and 1930 than it did between 1930 and 1940. Between 1920 and 1930 the increase for Georgia was only .4 per cent whereas between 1930 and 1940 the increase was 7.3 per cent. The more than 100 counties that increased their population in many instances recorded large gains, the highest being Chattahoochee with 69.9 per cent. Three new cities into the group of Georgia cities now having population of 10,000 or more bring the total to 19 for the state and every one of these 19 cities showed an increase in population, the smallest gain being 6.7 per cent and the highest, Albany, 31.1 per cent.

The increases in Kentucky cities of 10,000 or more population, which ranged from 1.4 per cent for Paducah, to 32.3 per cent for Owensboro, averaged 10 per cent. Only 15 counties in the state suffered a decline while 106 increased their population to give the state a total population increase of 8.6 per cent. The county having the largest increase was Jackson county with 56.1 per cent.

The population of Louisiana in 1940 showed a gain of 12.3 per cent over that for 1930. Among individual parishes 57 showed a gain and only 7 marked a decline. No less than 7 parishes increased their population by more than 25 per cent and, in one instance, amounted to 38.6 per cent. Although there were only two new cities entering the group of those with 10,000 or more population, bringing the total in the state to 10, all of this group showed an increase of 4 per cent or more and one city, New Iberia, increased 71.8 per cent.

The population increase in Maryland amounted to 11 per cent. Of the state's 24 counties, 19 marked up an increase. In one case, that of Montgomery county, the gain amounted to 65.5 per cent. There are now seven cities in Maryland having a population of 10,000 or more, every one of which increased its number, ranging from Annapolis with 3.9 per cent to Salisbury with 23.3 per cent.

Seventy-one of Mississippi's 82 counties

recorded a gain which in one case was high as 37 per cent. As in 1930, there are still 12 cities of 10,000 or more population. Their increase, however, is particularly notable for, with the exception of Vicksburg that recorded a gain of 5.8 per cent, the remainder had an average increase of 21.7 per cent. Such an increase is due in large part to the industrial development that has occurred in Mississippi during the last 10 years.

Missouri's total gain amounted to 4 per cent and of the state's 115 counties, 62 showed an increase. According to this year's census, there are 20 cities in the state with a population exceeding 10,000; that is four more than in the last census. Not all of these cities registered an increase but, of those that did, the average increase was 16.2 per cent, with the highest being 44.3 per cent for Clayton.

In North Carolina there are 100 counties and only nine of these registered a decline in population, the remaining 91 having substantial increases. At the same time the industrial development of North Carolina, which has been so evident in recent years, is clearly reflected in the growth of cities scattered throughout the length of the state with populations exceeding 10,000. There are 26 of these, four more than in the previous census, and only one registered a decline which, in point of actual numbers, was only 134 individuals less than in 1930. The others had gains ranging from 2.1 per cent to as high as 83.2 per cent for Hickory. Altogether, 13 cities had an increase of more than 20 per cent and for the first time in the history of the state, one city, Charlotte, surpassed the 100,000 mark with a total of 100,327.

In Oklahoma, the number of cities with a population exceeding 10,000 increased from 16 to 21 and only three of these 21 suffered a decline. The remainder increased in varying amounts to as much as 48 per cent for Lawton and 43.9 per cent for Stillwater while two other cities, Ada and Durant, exceeded 33 per cent each.

Of Tennessee's 95 counties, 87 registered an increase ranging as high as 36.6 per cent for Cumberland county. There are three new cities among the 11 listed this year as having 10,000 or more population, and all such cities registered an increase ranging from 1.3 per cent for Johnson City to 34.1 per cent for Columbia.

In Texas, where the population as a whole increased 10.2 per cent from 1930, 136 counties registered an increase, the

(Continued on page 62)

IS INDUSTRY SABOTAGING NATIONAL DEFENSE?

A FEW well-publicized critics of America's defense effort are running wild with ideas of a sabotaged program—a sit-down strike of capital or effort.

From numerous sources the public hears that industry is out to profiteer from defense production and that manufacturers refuse to accept defense orders without having their profits guaranteed or having legislation enacted or revised to grant them special privileges.

Such statements are simply not true. Further than that, such assertions are highly dangerous. Unwarranted attacks on industry—the country's first line of defense—if continued, and any special laws or regulations that extend beyond the period of the emergency are bound to hamper America's industrial productivity. Our dependence on this productivity is too vital to be tampered with.

Industry must not only build the weapons for defense; it must also be the major source of the tax money to pay for those weapons.

In recent months the National Association of Manufacturers has sought to present immediate answers to all major unjustified charges against industry. By press statements, radio programs, telegrams, letters and the like, the Association has challenged misstatements and answered courteously, but firmly, those who have attacked industry unjustly. A study of the subjects which have been treated in this "Quick Answer Campaign" shows that more than 25 per cent of all of the attacks of national importance since June, 1940, have dealt with national defense.

That industry has not fallen short is clearly evident from the public statements by the President of the United States, Army and Navy officials, Congressmen, and the National Defense Advisory Commission itself, who have said that they are receiving the utmost cooperation from American manufacturers.

Let us look at some of the answers to these unjustified charges against industry—answers, not from the accused, but from the most authoritative sources in government departments dealing with industry on national defense production.

The Charges Answered

The public was promised airplanes for defense, and it has every right to expect the production of airplanes at the fastest possible rate, without sabotage by anyone. Here is what the New York Times said a few days ago about the fulfillment



BY

H. W. Pentis, Jr.

President, Armstrong Cork Company and
President, National Association of
Manufacturers

of this promise: "A total of 10,015 planes for the Army and Navy are now in production, on contract or being built under letters of intention, Mr. Roosevelt reported today at his press conference."

Does that look as though industry is holding back on planes?

The New York Times continued: "Mr. Roosevelt said there is no evidence of dilatory tactics by industry." At the same time the President was asked if he was satisfied with the progress on other materials, and he said definitely *yes*.

"Is industry holding up the program because of a desire for excess profits, was another question. Mr. Roosevelt said *No*. He said that this was a problem for Congress, but that contracts were ready and industries seemed to be satisfied as long as they knew where they were going." If there is a delay, it certainly would seem it is in other quarters—and not in industry.

Now let us turn to what General Wesson, Chief of Army Ordnance, says: "We have had the finest cooperation . . . The spirit of American industry is absolutely fine and patriotic . . . I do not think they are out to make any unreasonable sum of money."

Here is what General Brett, Chief of

the War Department's Material Division, says: "The army would have been entirely out of luck if it had not been for the fact that industry was willing to take a chance. Today men have as much as \$1,000,000 over and above normal facilities invested in material and machinery, tools, and so forth, in anticipation of the work they are going to do for us, although they do not have a signed order."

If there is a delay in the defense program, certainly it cannot be laid to industry.

What About Profiteering?

The charge of profiteering is the most persistent. From the very beginning of this emergency, industry has been clearly on record in opposition to profiteering. As long ago as September, 1939, the National Association of Manufacturers said: "The use of this crisis as an excuse to extort unjustifiable profits . . . is not only indefensible and dangerous, but reprehensible morally."

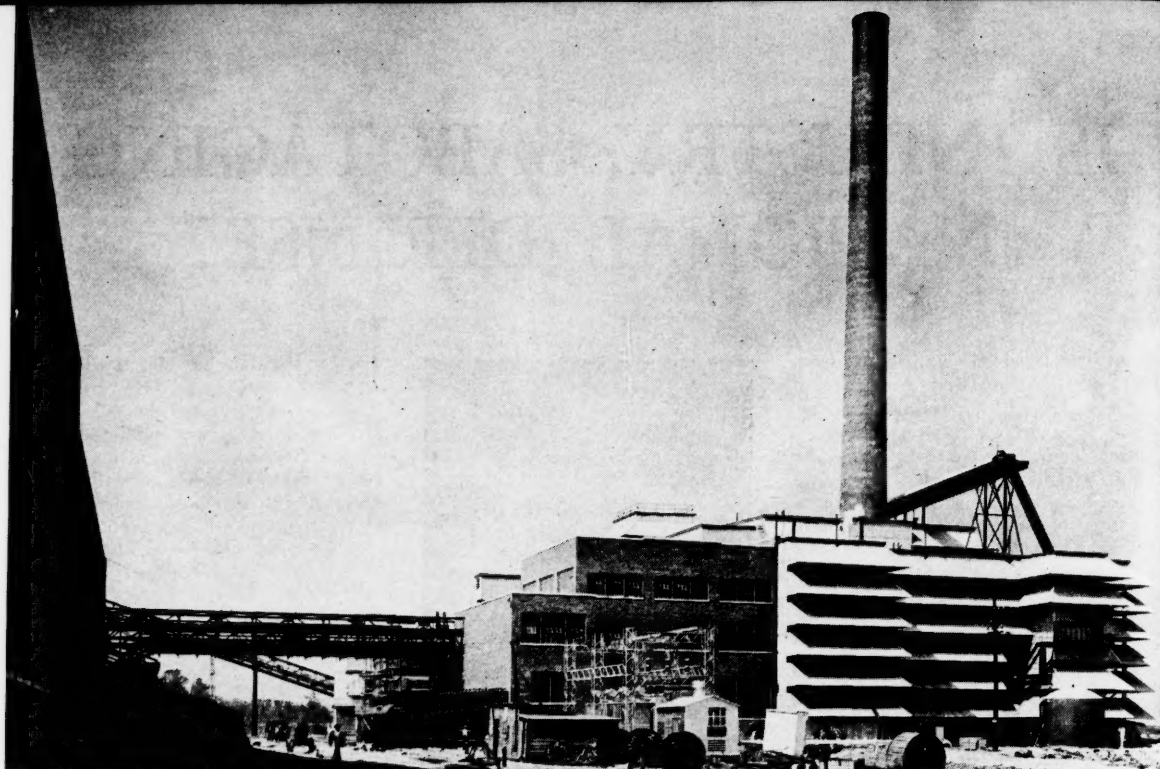
Industry sincerely approves of any fair method of preventing excessive profits which might arise from the rearmament program of the United States. Although it is aware of the basic unsoundness of excess-profits taxation as a permanent part of the tax structure, the National Association of Manufacturers endorsed publicly and at the Congressional Hearings on the present tax bill, the idea of applying an emergency but equitable excess-profits tax even to 1940 income. This recommendation was made despite the fact that national defense money has not yet begun to flow in full measure through business channels. This represents clear cut evidence of industry's opposition to any profiteering whatsoever on national defense business.

Industry Takes Initiative

More than 100 industrialists, some of the best brains that industry has to supply, are now serving the government without pay in the National Defense Advisory Commission. They are on the job day and night building for defense.

Industry of its own accord, working through the National Association of Manufacturers and the National Industrial Council, is making a survey of industrial facilities, not only to aid the Army and Navy, but also to protect consumers and to assure consumers of their everyday needs.

A great number of companies have gone
(Continued on page 58)



THE CHICKASAW PULP AND PAPER MILLS AT MOBILE NEAR COMPLETION

HOLLINGSWORTH and Whitney Company's new Chickasaw Mills at Mobile, Alabama are now virtually completed, and will shortly be in production.

The result of painstaking study extending over a number of years, the mills typify the most up-to-date developments in paper mill layout and construction. Included are a pulp mill, pulp drying machine, bleach plant, Fourdrinier machine and cylinder machine, and necessary complementary equipment. The plant is designed to produce approximately 200 air-dry tons of sulphate pulp, both bleached and unbleached. The paper machine capacity is approximately 160 tons. Balance of the pulp will be dried for shipment.

Many factors entered into selection of Mobile as the site of the Chickasaw Mills. The city is one of the fastest growing industrial centers in the South. Splendid rail and shipping facilities are close at hand, and a plentiful supply of wood is readily available. The Company has purchased woodlands within hauling distance of the mill.

It is planned to receive wood at the plant by truck, rail and barge. The wood yard is located at the North end of the mill where it may be reached conveniently by switch from the Alabama State Docks Railroad, by truck via a separate road that does not pass through the mill yard,

and by barge via the inland waterway system, or via Alabama's fine river system.

Under ordinary conditions logs 5' 3" in length will be furnished direct to the barking drums over Jeffrey log conveyors. There are two 12' x 45' D. J. Murray trunnion type barking drums with flat belt drive. The wood then passes a log sorting conveyor and platform where unsatisfactory bolts will be re-routed through the barking drum or submitted to special cleaning processes to remove seams and knots. The bolts are chipped in two 88", four knife Carthage chippers which are equipped with card breaker attachment. These are driven by direct connected General Electric synchronous motors.

Chips pass next over two Orville-Simpson Rotex chip screens, from which accepted chips are passed to storage. Otherwise, chips are routed through a Waterville Iron Works chip crusher; sawdust and bark are transported via a waste conveyor to the Hofft bark burning furnace.

Accepted chips, clean and of uniform size, are handled on Jeffrey conveyors from chip crusher to digesters. Chip storage is located at ground level, and the storage bin holds a supply adequate for approximately 16 hours' operation. The chips from this bin pass to the top of the

Digester House where they are distributed to the digesters.

The inclined belt conveyor is equipped with an automatic weightometer and rateograph manufactured by Merrick Scale Manufacturing Co. These instruments record the weight of chips charged to each digester, insuring control of quantity and quality from the start of the operation.

There are four Blaw-Knox digesters, 11' in diameter by 47' overall height. The digesters are equipped with Fibre Making Processes Company indirect liquor heaters, and circulating pumps so connected as to permit either direct or indirect cooking.

The blow valves are 8" diameter, manufactured by Reading, Pratt & Cady.

The blow tank and trap, as well as other steel tanks at the mill, were furnished and erected by the Hammend Iron Works.

The heat value of steam in the blowing process is recovered through a Foster-Wheeler flash type blow-down condenser, 16' 4" x 8' overall dimensions.

From the blow tank the pulp is washed in a 3-stage counter current vacuum washer system consisting of three 8' x 12' washers, each having 300 sq. ft. drainage area, furnished by Improved Paper Machinery Corporation. Tanks beneath the washer system provide for the storage of

strong, intermediate and weak black liquor and pulp, and there is a dump tank to permit the removal of pulp from any stage in the event of shut-down.

The pulp next flows to the screen room where a larger screen area than usual has been designed by Impco, to produce pulp of unusual cleanliness. The pulp first passes through three knotters of the type first developed at the company's Waterville mill. Then it flows through a large battery of felt-lined riffles, constructed of cypress, and then through a battery of centrifugal screens. Finally, it passes through a system of diaphragm type flat screens equipped with Dunbar drive and bronze vats. Union and Fitchburg screen plates have been installed with Witham screen plate fasteners.

The pulp is then thickened on large Impco vacuum deckers, and thence flows to Stebbins tile-lined storage tanks, where it is thoroughly blended by continuous agitation. The agitator assembly was by the Hill Clutch Machine & Foundry Co.

Provision has been made for production of baled pulp in sheets for which an 80" Fourdrinier pulp drying machine, from one of the company's Northern mills, equipped with a Beloit Iron Works suction couch roll, has been installed. The drying machine is equipped with a Hamblet Duplex sheet cutter, a Mathews roller type conveyor, and a Baldwin-Southwark baling press.

Stock from the screen room may be dried or used in process as brown stock or it may be passed through the Bleach plant, which may be considered the next step in the process. Improved Paper Machinery Corp. supplied Thorne bleaching equipment, producing fully-bleached pulp by a continuous process. All chests and towers in this department are constructed of concrete and were tile lined by the Stebbins Engineering & Manufacturing Co.

In order to eliminate contamination, extensive use has been made of rubber-lines and other special piping, and the operating room of the bleach building is lighted by glass brick panels. The building is ventilated by a forced ventilation system. Density of stock is controlled by Northern Equipment Company Copes Consistency Regulators and Impco stock meters.

Chemicals for the preparation of bleach liquor are fed to the system by efficient handling methods. The equipment for sulphur dioxide handling has been supplied by the Virginia Smelting Co.

Pulp at high density is stored in four cylindrical concrete tanks, tile lined by the Stebbins Engineering & Manufacturing Co. The pulp is carried to the tanks by conveyors, and is pumped from them to the pulp drying machine or stock preparing department.

Pulp from the stock storage system is



Above—The underground reservoirs and pump house. Below—A Baldwin-Southwark press for baling the sheets of pulp for export.

pumped to individual stock thickeners which empty into filling tanks located over each of the seven 2,500 lb. beaters, manufactured by J. H. Horne & Sons Company, and of a new design developed in collaboration with Robert Nivison, manager of mills for Hollingsworth & Whitney.

The size making system consists of a number of tanks supplied by the Mobile Steel Co., together with equipment designed especially for this installation. Wooden tanks for the storage of alum have been supplied by the Hauser-Stander Co.

Following treatment in the beaters, the stock is pumped through a battery of six Dilts hydratiners, operating at 1200 R.P.M., capable of passing 700 to 800 gallons per minute of stock at 4½% consistency. Final treatment of the pulp is accomplished by the use of eight Jordans manufactured by the Emerson Manufacturing Co.

All motors for this department are controlled from a special battery of General Electric Co. cubicles, situated on an elevated bridge in the central part of the building. Cylindrical stock tanks in this department, and also for the paper machines were constructed by the Stebbins Engineering & Manufacturing Co.

Proper mixing of stock is insured by Noble & Wood propeller type agitators. Stock from this department next passes to the paper machines. Paper Machine No. 1 is a Pusey & Jones 184" Fourdrinier, with a trim of 164". This machine is equipped with four Bird screens. There is an Impco screen for tailings, and a saveall to handle the white water. The paper machine is also equipped with:

Midwest Fulton Dryer Drainage System

Ross Engineering Co. ventilating system and calender blowers

Whiting cranes

General Electric Company sectional motor drive.

Lubricating oil is circulated through a Bowser purifying system.

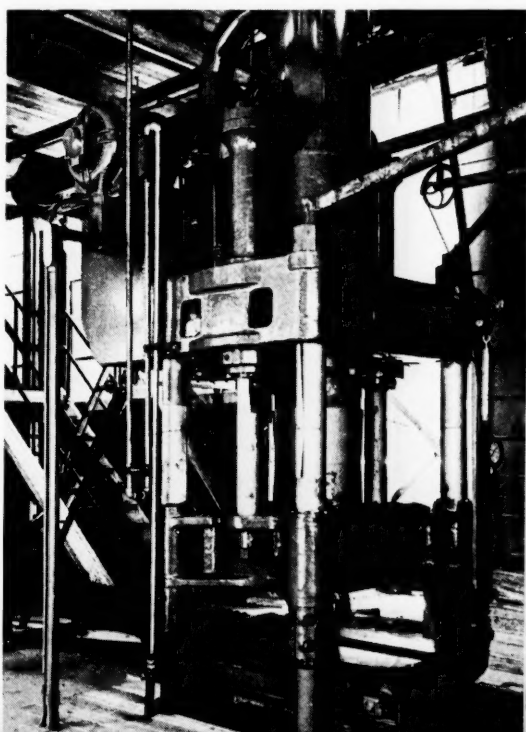
At the end of the machine, there is a high speed Pusey & Jones splitter and winder for slitting paper into rolls. In the basement is situated a broke beater manufactured by Dilts Machine Works, a Worthington air compressor and Nash vacuum pumps.

Paper machine No. 2 is a cylinder ma-

chine with an improved Pusey & Jones 124" stream flow wet end. Incorporated in this machine are new Pusey & Jones stream flow vats recently installed for the first time at the company's mill at Waterville, Maine. This machine is also equipped with Bird screens, Ross ventilating system and other modern auxiliaries. It is driven from a line shaft by a General Electric single motor drive with small helper motors at the wet end. This machine is followed by a high speed Langston splitter and winder for production of rolls.

The combined capacity of the two machines is approximately 160 tons per day.

Paper from these two machines progresses to the final building in the production line, on the second floor of which is situated the finishing department. Finishing equipment includes the latest model Hamblet Simplex and Duplex cutters for production of sheets and slitters constructed by the Kidder Press Manufacturing Co., to produce finished rolls. For small sized sheets and for trimming, the finishing department is equipped with Seybold precision trimmers.



Howe scales and recording devices are used for the weighing of papers. Paper is transferred by elevator to the ground floor. Elevators in this building and elsewhere were installed by George T. McLaughlin Co., of Boston.

The ground floor contains a commodious shipping room. Outgoing rail shipments from the mill will be handled over the tracks of the State Docks Terminal Railway, from which they may be transferred to any of the five railroad systems serving Mobile, or to steamships.

To the west of the paper machine room, and served by a transfer car, is a machine shop and roll grinder room. In addition to a battery of lathes, drills and other metal and wood working tools, there is a Seybold knife grinder, a Lobdell Carwheel Co. roll grinder and a Bridgeport Safety Emery Wheel Co. knife grinder for chipper knife.

Having followed the product through from logs to finished paper, we now turn to the processes for the recovery of chemicals and generation of power.

Strong black liquor removed from the pulp by the first stage washer is transferred to storage tanks from which it is fed to a complete Swenson 6 body, quintuple effect evaporator equipped with LaBour pumps. From there it passes through two D. J. Murray Cascade evaporators from which it emerges at a density of 55% Solids.

From a storage tank it is pumped to the Babcock & Wilcox mix tank where desired quantities of make-up saltcake are added. Saltcake which is received in cars has been stored in 3 conical bottom steel tanks from which it is fed to the mix tanks through Jeffrey conveyors, crusher and weigh control device. From the mix tank it is pumped by Worthington pumps to two Babcock & Wilcox Tomlinson recovery units, each of which is capable of handling the black liquor from the production of 95 tons of pulp per day with ample over capacity. Steam capacity is 33,600 lbs. per hour at 600 lbs. gauge pressure each unit.

The smelt goes to the dissolving tanks from which it emerges as green liquor, through a Worthington pump to the Dorr causticizing system, consisting of one green liquor clarifier, one dregs washer, one white liquor clarifier, one lime mud washer, one improved type truboslaker and three causticizers.

The system is equipped with Dorco diaphragm pumps for the lime mud and Worthington and Morris pumps for the liquor. Lime sludge is pumped to one 8' x 4' Improved Paper Machinery Corp. sludge filter, from which it flows by gravity to an 8' x 160' Vulcan Iron Works rotary lime kiln.

The lime kiln is fired with gas fuel through Coppus Dennis fan mix type burners. The temperature in the firing zone is controlled by Leeds & Northrup radiation pyrometers. Fresh and re-burned lime are fed by Link-Belt and Jeffrey conveyors through screens to steel tanks. Lime from these tanks is controlled by Ross feeders. Additional process steam is generated in three Babcock & Wilcox fuel fired boilers. One of these boilers is equipped with a Hofft bark burning furnace for the consumption of waste, but may also burn other fuel if required. Boilers are equipped with B. & W. trifuel burners for the consumption of pulverized coal, gas or oil. They have a capacity of 89,000 lbs. of steam per hour at 600 lb. gauge pressure. Both fuel-fired boilers and recovery boilers are equipped with Sturtevant Forced and Induced draft fans and B. & W. air pre-heaters. Feed water heaters are manufactured by Worthington, and the boiler feed pumps are manufactured by Ingersoll-Rand. Recovery units are equipped with Bailey Meter Co. meters. Boilers are equipped with Diamond

After reduction of the wood chips to pulp, the latter is then washed in a 3-stage counter current vacuum washer system pictured below. This consists of three 8' x 12' washers, each having 300 sq. ft. drainage area. The washers are by Improved Paper Machinery Corp.



Power Specialty Co. soot blowers and bi-color water gauges and Republic Flow Meters combustion control. Hall Laboratories, Inc. are the company's consultants for boiler feedwater treatment control and service. Exhaust gases are vented through a single brick smoke stack, 225' high, 11' 8" in diameter at the top.

The steam is piped to a General Electric Co. 7500 KVA turbine which bleeds at 130 lbs. pressure for pulp cooking and exhausts at 30 lbs. pressure for drying and other process work. Republic reducing valves are used for pressure reduction to 130 lbs. and 30 lbs. additional steam.

Hollingsworth & Whitney Co. obtains a substantial part of its electricity from this turbine, through which all process steam passes, the supplementary electricity required being supplied by the Alabama Power Co., which has installed at the plant a 22,000/200 volt—75000 KVA transformer bank sub-station adjoining the turbine room.

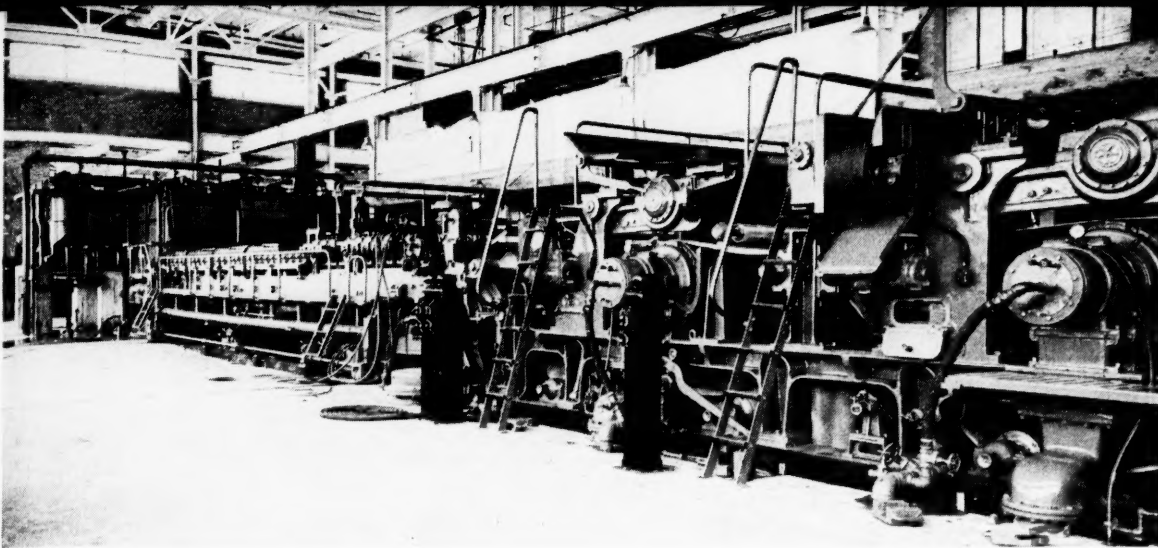
Power is generated at 2400 volts. All motors in the mill over 50 HP operate at 2200 volts. Smaller motors operate at 440 volts, receiving current from 2400/480 step-down transformer bank located just outside of the turbine room. The company has an arrangement with the Alabama Power Co., by which it will supply power to the utilities system in case of public emergency.

The lighting circuit is supplied by individual 440/220/110 volt transformers installed outside of the various buildings. At some distance from the turbine room is a transformer station providing 13,200 volt power to transmission lines serving the deep well pumps.

There are over 500 motors in the mill, ranging in size from ¼ HP to 1100 HP and supplied by General Electric Co. Mill power is controlled by General Electric cubicle type controls. Wiring throughout the mill has been installed by the Allegheny Industrial Electrical Co. as subcontractors to the Rust Engineering Co. Extensive use has been made of conduit buried in concrete. Exposed conduit is heavily waterproofed.

At the southeast corner of the mill building fronting on U. S. Highway No. 90 near the entrance to Cochrane Bridge across Mobile Bay, is situated a group of buildings designed by Fay, Spofford & Thorndike of Boston. The office building is insulated and fully air conditioned to provide the optimum working conditions for the staff controlling the company's operations at Mobile. The upper sash of this building is glazed with Coolite heat resisting glass.

In the rear of the office building are situated the time room office and locker building in which company payroll records are centralized, and in which are contained shower baths and individual locker facilities. This building is



equipped with an efficient ventilating system.

The building north of this houses the laboratory and first aid department. Efficient insulation from the outside atmosphere was the prime factor under consideration in the planning of this building which is lined with hollow tile. The building is air conditioned, and complete facilities are provided for physical and chemical analysis. The first aid department is in the north end of the building, consisting of a dispensary, a first aid room, and a hospital room.

Great attention was paid to the development of an adequate high quality water supply. To this end, the Layne-Central Co. was engaged to supply and construct a deep well water system consisting of 25 wells extending several miles northwest of the mill site. These wells are equipped with Layne-Bowler pumps. Water is obtained from two different strata, and each strata has its own chemical characteristics, though both are of high quality. So careful has the company been to preserve exact characteristics of product that a complete duplicate pipe line and reservoir system has been installed throughout the mill to carry to each process the water of the characteristics best adapted for use.

The pipe line from the wells is of Armo Spiral welded steel, bitumastic lined. The lining was applied under the supervision of the Wales Dove Hermiton Co. Layne-Central Co. erected the pipe line and electric transmission line controlling the General Electric motors driving each well pump. At the end of the pipe line and adjacent to the plant

Above—The wet end of the No. 1 Pusey and Jones Fourdrinier paper making machine. Below—The same machine from the opposite end. This, the winder end, is where the finished paper is removed in huge rolls. This machine is 184' with a trim of 164". The second machine is 124' and their combined capacity is 160 tons per day.

are two storage basins for transit storage consisting of two concrete reservoirs with concrete dome covers holding 1,250,000 gallons each. The water is aerated in these tanks, which were constructed by the National Gunitite Contracting Company by the prestress method.

A pump house containing three pumps insures a full supply of water to the mill. One of these pumps is a spare. In addition there are two fire pumps. All of this equipment was manufactured by Goulds Pumps, Inc. Valve connections and controls have been installed to meet any emergency condition which may cause a failure in part of the system.

A complete fire protection system has been designed with the advice of the Associated Factory Mutual Insurance Companies of Boston, including a 125,000 gallon elevated sprinkler supply tank supplied by the Chicago Bridge & Iron Works, Ludlow hydrants, and Rust hose houses. Sprinklers in all combustible buildings were installed by the Grinnell Co., Inc.

In addition to the installation by Layne-Central Co., two other piping contractors contributed to the job. All outside water piping was installed by the Pittsburgh Piping & Equipment Co., under subcontract with the Rust Engineer-

ing Co. All inside steam, water and process piping was installed by the Grinnell Co., Inc. Insulation of steam piping and certain process tanks is glass manufactured by and erected under the direction of engineers of Owens-Corning Fiberglass Corp., of Toledo, Ohio.

Valves throughout the mill were supplied by:

Chapman Valve Manufacturing Co.
Dezurik Shower Co.
Reading, Pratt & Cady
Hills-McCama
Yarnall Waring Co.
Golden Anderson Manufacturing Co.
Powell Valve Manufacturing Co.

Effluent from the various mill processes flows through a sewer system which contains a weir in each department. These weirs are equipped with recording instruments to keep a measurement of all wastes voided. The main sewer flows through a large settling basin on company property where objectionable foreign matter is removed before water leaves the mill site.

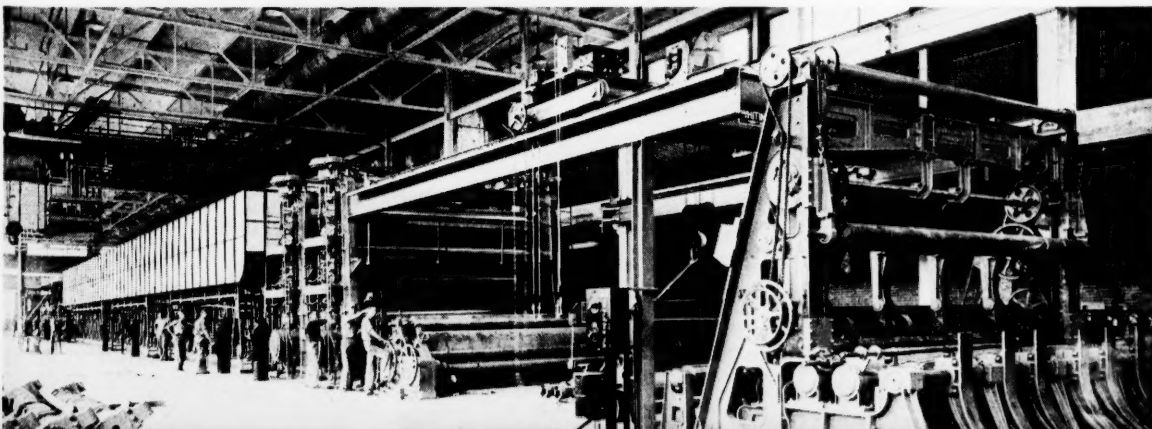
General building construction is divided into several types:

In buildings where tight construction is of paramount importance, brick walls were used.

In other process buildings, transite siding fastened to steel girts replaces the brick.

In locations where maximum ventilation is desired, such as the Boiler Plant, an open louvre transite construction has been used.

Certain processes, such as the barking
(Continued on page 58)



"THE SOUTH'S RESOURCES"

Its Appeal As a Contributing Factor to the South's Development and National Defense

While the complimentary remarks concerning the "South's Resources" issue of the MANUFACTURERS RECORD have been welcome, the most gratifying feature of the response is the acknowledgment that this volume will serve a useful purpose, particularly in the National Defense Program.

Ever since "The South's Resources" was distributed, telegrams and letters have poured into our office by the hundred. And still they come. That the volume will be accorded a permanent place among reference books there can be little doubt. An indication of the manner in which this publication has been received is apparent from the extracts from letters printed here. These are but a few of the many received.—EDITOR.

"High Standard"

"While I have had no time to go through this issue thoroughly, a casual glance indicates that it is fully up to the high standard already established by your publication for special issues of this type, and I have taken occasion to send copies to officers of the parent Federal Reserve Board in Atlanta and to the Nashville Branch Board, of which I am Chairman this year. Much of the information as to natural resources and facilities will form an excellent ground work for a special study now being undertaken by the Nashville Branch Board covering Tennessee, and I am quite certain that the entire Atlanta District will conduct a similar and all embracing survey of the entire District."

E. W. PALMER, President
Kingsport Press, Inc.
Kingsport, Tennessee

"Timely"

"I am wondering also whether there has not been some collaboration with current events that makes this entire issue so timely. It certainly fits in with the government's general defense program and you are to be congratulated on not only the excellent manner in which you have executed this difficult job, but also its timeliness.

"We are putting a copy of the issue in the hands of all of our seven representatives, for it contains information very pertinent to their territories which cannot be secured from any other source that we know of."

FREDERIC I. LACKENS, Advertising Mgr.
The Hays Corporation
Michigan City, Indiana

"Invaluable"

"The maps alone are invaluable.

"The issue is a mighty fine volume to have, not only for very interesting and informative reading, but for long and reliable reference.

"I want to take this opportunity, too, to congratulate you on the excellent selection and handsome layout of pictures, the legibility of the reading matter and the fine quality of the press work.

"Doggone it! The whole thing is grand. We are happy to have copies of it."

LESLIE DAVIS
The Wall Street Journal
New York, New York.

"Reflects Boundless Opportunities"

"Your September issue admirably exploits the 'Resources of the South.'

"I see nothing in your voluminous issue that in any way justifies the loose-lipped statement that 'the South is the nation's No. 1 economic problem.'

"On the contrary, your illustrated articles reveal remarkable industrial development, and reflect boundless opportunities in the 16 states you have high-lighted as a land of opportunity."

A. C. MCKIBBIN, Director of Public Relations
St. Louis Southwestern Railway Lines
St. Louis, Missouri

"First Work of Its Kind"

"The edition will be extremely valuable from many standpoints, especially for use by industrialists, community and state organizations and merchandising bureaus. It is without doubt the first complete work of its kind on the South and we con-

gratulate you for the contribution you have made in the interest of further developing the Southern states."

F. E. TURIN, Manager
Norfolk Advertising Board
Norfolk, Virginia

"Valuable to the South"

"This is certainly a very excellent issue and not only will it direct a great deal of attention to the opportunities in the South, but you have been successful in accumulating into one volume information that will be extremely valuable to the South itself."

B. T. GREGORY
Tennessee Department of Conservation
Nashville, Tennessee.

"Comprehensive"

"I consider your survey of the sixteen Southern states very comprehensive and was amazed at the extent of the resources to be developed in this section."

R. I. INGALLS, JR., Vice President
The Ingalls Iron Works Company
Birmingham, Ala.

Tremendous Potential Business

"We feel as you do that with this projected view of those resources now being touched and untouched there is still tremendous potential business to be had."

E. L. BERTRAM, Manager Sales Promotion
Automatic Transportation Co.
Chicago, Ill.

"Monumental Work"

"I wish to compliment you on your interesting and instructive volume, 'The South's Resources,' received today. It is indeed a monumental work, containing a wealth of basic information on our Southern states and their vast industrial possibilities.

"Does this supplant your annual 'Blue Book of Southern Progress'? If it does not, I would like to have my copy of the new issue of the latter as it contains much statistical information which proves of value to me in my work."

ROBERT TALLEY, Editor
Mid-South Business Survey
Memphis, Tenn.

"The South's Resources" DOES NOT supplant the annual BLUE BOOK OF SOUTHERN PROGRESS. The 1940 edition will be published about December 1 and, containing the latest available figures covering the South's manufacturing, agricultural, mining and mineral output, will supplement the material carried in "The South's Resources"—the two can be used together effectively to get an accurate picture of the South's current development.—Ed.

Defense

"I agree with your remarks concerning the ability of the South to serve the nation in the matter of progressing the national defense program."

C. MCD. DAVIS, Exec. Vice Pres.
Atlantic Coast Line R. R. Co.
Wilmington, N. C.

Reference

"I have noted with interest your September issue of MANU-

MANUFACTURERS RECORD FOR

FACTURERS RECORD on 'The South's Resources' and feel that it is so well done it should be in our files for reference.

"Will you, therefore, please send us three copies."

FRANK N. NEELY, Chairman of the Board
Federal Reserve Bank of Atlanta
Atlanta, Georgia.

"A Concentrated View"

"The South's Resources' was received today, and we assure you that we will be able to make very good use of it. The great industrial importance of the South has long been known by the various manufacturers, but until looking through this special issue, we did not have a concentrated view as to just what the South contained. The coverage that you have given this very important part of our country is not only useful, but interesting."

B. P. SPANN
Gardner-Denver Company
Quincy, Illinois.

"Remarkable Achievement"

"It is really quite difficult to do you full justice with a brief statement. This is an exposition of the South's resources, together with the remarkable achievement along industrial lines which should prove of inestimable value. It is about the most complete thing of its kind that I have seen and will serve not only as excellent material to persuade other industries to locate in this area, but will serve as a reference book on the South's resources for a long time to come."

WARREN T. WHITE, Gen. Ind. Agent
Seaboard Air Line Railway
Norfolk, Virginia.

"Factual Data"

"We are glad to have it for the factual data that it contains, as well as for the handsome manner in which it is prepared."

B. G. HUNTINGTON, President
The Huntington National Bank
Columbus, Ohio.

"Very Useful"

"I have carefully reviewed this edition, and congratulate you upon your achievement. It certainly contains some very interesting data, which should be very useful to subscribers."

W. HARNISCHFEGGER, President
Harnischfeger Corporation
Milwaukee, Wisconsin.

"Comprehensive"

"You are certainly to be congratulated on this issue. It is so comprehensive that it will serve as an excellent reference. We are very proud to have a picture of our Fernandina Mill in it."

MADELYN KURTIL, Sales Promotion Department
Rayonier, Inc.
New York, N. Y.

"Every-day Reference"

"The best indication I can give of my appraisal of this splendid issue is that I am having all four of my copies permanently bound, to be used as every-day reference books. One copy will be put in our Station Library, two copies supplied our Forest Economics group, and one copy for my own desk. I congratulate you upon the scope of the volume and upon the very fine editorial work that has gone into it."

I. F. ELDRIDGE, Regional Survey Director
Southern Forest Experiment Station
New Orleans, La.

"Suggestions for Plant Locations"

"I am greatly pleased with the manner in which this volume has been set up. This information is very useful at this time when businesses are casting about for factual suggestions for plant locations."

I. LIPPINCOTT
Washington University
St. Louis, Missouri.

"Impressive"

"The maps and data on 'The South's Resources' assembled in the contents of this issue are indeed impressive and your organization is to be commended and congratulated."

"We are pleased to be represented in this issue which will surely enjoy wide circulation and be preserved as a reference for a long time."

PHIL T. SPRAGUE, President
The Hays Corporation
Michigan City, Indiana.

"Will Derive Much Benefit"

"It will receive our careful study and we are confident that we will derive much benefit from this authoritative report on the economy of this important part of the country."

WILLIAM C. POTTER, Chairman of the Board
Guaranty Trust Company of New York
New York, N. Y.

"Uses Will be Many"

"As a reference, this copy will prove very useful indeed. The specific manner in which we'll put it to work has not yet been determined."

"However, with comprehensive facts, placed so pleasingly at the elbow, the uses will be many."

H. D. LEOPOLD
Edward G. Budd Manufacturing Company
Philadelphia, Pennsylvania.

"Helpful and Instructive"

"This book will be very helpful and instructive and upon hasty examination we feel that it is thorough in covering information which is often needed by manufacturers."

LAMAR JOHNSON, President
Dixie Sand & Gravel Corporation
Petersburg, Va.

"Informative Edition"

"I want to congratulate you upon publication of the valuable and informative edition of the MANUFACTURERS RECORD, September 1940, setting forth such comprehensive information on the South's resources."

"I am sure I shall find it valuable, as will all others interested in the development of the nation and its component parts."

HARRY F. BYRD
United States Senate
Washington, D. C.

"A Library in Itself"

"The book is one of those things which one does not 'toss off' in one reading. It is a library in itself, and as such it can and will be referred to for facts about 'The New South.'"

"As a prediction—I'll bet 'The South's Resources' will be quoted far and wide. This collateral publicity may prove quite as valuable a service to the South as is your original work of publishing the data. All the more to your credit!"

A. L. DIEDERICH, JR.
New York, New York.

"Source of Information"

"This is indeed a remarkable piece of work for which you ought to be highly complimented. Needless to say, it will be a valuable reference and source of information."

G. E. SEAVOY, Manager
Swenson Evaporator Company
Harvey, Illinois.

"Of Great Value"

"You have apparently compiled some interesting data on this important industrial area. Your efforts in publishing this issue should be of great value not only to the South, but to the entire country in making better known the tremendous resources of the South, and the opportunities which it offers for industrial development."

J. J. SUMMERSBY, Gen. Sales Mgr.
Worthington Pump & Machinery Corp.
Harrison, New Jersey.

BALTIMORE BUILDING COSTS AND OPERATIONS 1900 - 1939

PART II

BY

A. F. Di Domenico

STUDIES of Baltimore building operations, as previously mentioned covered four periods extending over forty years from 1900 to 1939. The first period was that from 1900 to 1918, inclusive, before the city annexed large additional areas. The second period was that from 1919 to 1939, inclusive, or the years since annexation. Boom years from 1920 to 1929, inclusive, and the 10-year period from 1930 to 1939, inclusive, were also examined to further analyze the city's building trends.

Permits, for the purposes of the study, were grouped by classes of occupancy. Public assembly buildings, private assembly buildings, institutions, office buildings, commercial buildings, storage buildings, industrial buildings, miscellaneous buildings, and structures, and dwellings. These, with exception of dwellings, were discussed in a preceding article. The residential aspects of the Baltimore building pictures are considered in this article.

During the first three periods mentioned above, the division of the dollar value of private dwellings was almost constant, varying only 5 percent from 34.72 percent to 39.77 percent, while the average for the entire 40-year period was 36.63 percent. However, during the 10-year period, the percentage for private dwellings dropped to 29.26 percent.

During the period prior to Annexation, 1900 to 1918, inclusive, 35,628 private dwellings at a valuation of \$57,878,705 were erected in Baltimore City, or an annual average during this period of 1,875 dwellings valued at \$3,046,247. In the boom years, 1920 to 1929, 36,327 private dwellings were constructed involving an outlay of \$145,613,400 or an annual average of 3,623 buildings costing \$14,561,340. During the last ten year period, 1930 to 1939 inclusive, which can be appropriately called the depression years, 10,422 dwellings, costing \$42,215,755, were built, the average number annually being 1,042 valued at \$4,221,575.

Summarizing, therefore, in the 40-year period, 1900 to 1939, inclusive, 85,853 private dwellings were erected with an aggregate value of \$256,037,367. This is an average of 2,146 dwellings annually at an outlay of \$6,401,861.

It is obvious from the above figures that the average number of dwellings constructed annually during the last ten-

year period is 2,590 under the average for the boom period, 833 below the annual average for the 1900-1918 period and 1,104, or over one-half less than the average number of residences built annually during the past 40 years.

The average value per dwelling for the various periods is as follows:

Period	Number of Dwellings	Average Cost
1900 to 1918...	35,628	\$1,625
1919 to 1939...	50,225	3,945
1920 to 1929...	36,327	4,000
1930 to 1939...	10,422	4,050
1900 to 1939...	85,853	2,982

These figures indicate that although fewer homes were built during the depression years, the average cost of dwellings was maintained. In fact, an increase was noted, although a decline to a more moderate price home was evidenced in 1938, when this cost was \$3,681 and dropped to \$3,297 in 1939.

PRIVATE DWELLING CONSTRUCTION

Year	Number	Permit Value	Average Cost
1900	1,269	\$1,181,200	\$ 931
1901	1,149	1,329,000	1,157
1902	1,161	1,514,100	1,304
1903	937	1,358,000	1,449
1904	981	1,673,500	1,706
1905	2,016	3,208,000	1,591
1906	2,761	4,529,000	1,640
1907	2,329	4,110,000	1,765
1908	2,153	3,943,000	1,831
1909	2,307	4,245,000	1,840
1910	2,128	4,161,000	1,955
1911	2,390	4,262,000	1,783
1912	1,911	3,358,000	1,757
1913	2,125	3,866,000	1,819
1914	3,071	4,388,000	1,429
1915	3,276	3,231,500	986
1916	2,468	4,721,550	1,913
1917	833	1,892,900	2,193
1918	333	706,955	2,122
1919	3,476	10,329,507	2,971
1920	2,056	9,415,300	4,579

1921	1,881	7,988,000	4,247
1922	3,406	13,701,000	3,952
1923	4,304	17,087,500	3,970
1924	4,995	19,837,000	3,971
1925	5,954	23,491,900	3,945
1926	4,929	17,726,500	3,596
1927	3,348	13,524,000	4,039
1928	2,587	11,154,000	4,311
1929	2,797	11,688,200	4,178
1930	1,419	7,095,800	5,000
1931	1,652	7,453,000	4,511
1932	372	1,754,000	4,715
1933	171	595,000	3,479
1934	119	443,000	3,722
1935	474	1,915,000	4,040
1936	1,127	4,543,000	4,031
1937	1,455	5,928,500	4,075
1938	1,534	5,647,000	3,681
1939	2,099	6,921,235	3,297

The year 1939 marked the period of residential construction during the last 10 years, the 2,099 dwellings approaching the 40-year average of 2,146 representing 60.54 percent of all construction for the year, against 49.75 percent in 1938 and 40.46 percent in 1937, this total indicating sharp gains in residential construction in the last three years.

The 10-year slump in residential construction paralleled a period of more dwelling demolition than in any other period. These razings were mostly attributed to street widening, parking lots and buildings ordered torn down because of unsafe conditions. Demolition during this period amounted to 6,029, averaging over 600 buildings per year, as compared with 2,628 from 1923 to 1929, or an average of 375 during the latter mentioned period.

In a 17-year period 8,657 buildings have been razed. From a low of 281 during 1923, the demolition gained steadily to a high of 934 in 1936. Since then they have averaged about 750 annually. From 1932 to 1939, a total of 1,635 dwellings or 33.8 percent of total dwellings demolished were razed because they were a menace to public safety. The Bureau of Buildings has been particularly concerned with the large number of abandoned dangerous buildings razed by this Bureau in the last decade, not because dwellings were out-moded faster during this period, but that property owners took the easiest way out to avoid paying on property that could not pay its way. The majority of these tax sale properties razed by the Bureau were found in alleys and small streets, within a radius of one mile and

a half from the center of the city.

The following tabulation shows the total number of buildings razed by year from 1923 to 1939, including both the buildings razed at the owner's request and by the Buildings Engineer:

1923	281
1924	501
1925	436
1926	378
1927	316
1928	364
1929	352
1930	601
1931	597
1932	328
1933	369
1934	484
1935	445
1936	934
1937	761
1938	722
1939	788

The deficiency created in dwelling accommodations due to demolitions and slump in this type of construction in the last 10 years should result in continuation of residential construction as a leading factor in building construction in the next several years.

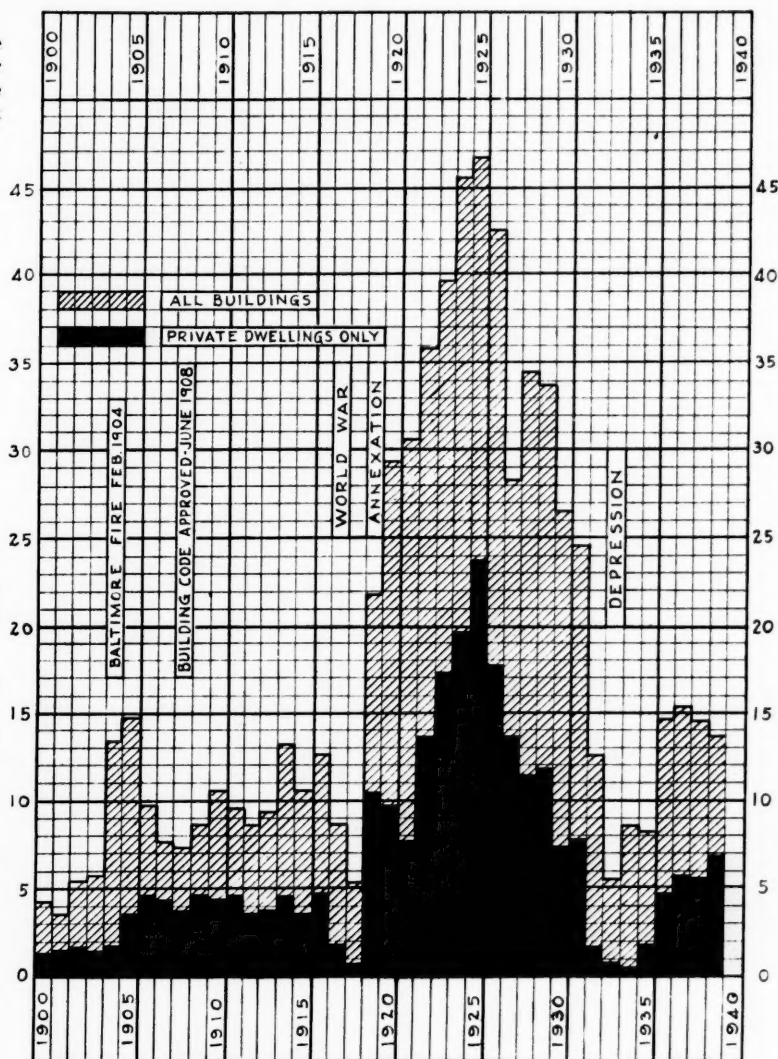
In 1938 this Bureau started to keep special records of dwelling construction in order to ascertain the cost of the various types of dwellings erected yearly. Of 1,534 dwellings erected in 1938, 791 were for the row-type houses which averaged \$2,883 in cost. Houses in the range between \$3,000 and \$4,000 comprised the largest group in number built during 1938. In that year 103 apartment units were built for 756 families at a value of \$1,541,000; compared to only 6 apartment houses for 38 families and costing \$66,000 built the preceding year.

During 1939 residential construction comprised 60.54 percent of the total building costs, compared with 49.75 for 1938. In this year, 2,099 private dwellings were built at a valuation of \$6,921,235.

Row Houses which totaled 1,053 continued to be the outstanding type dwelling erected in Baltimore. Next in prominence were the group and semi-detached types for which permits were issued for 529 divided into 293 in groups in 235 semi-detached.

Before Annexation, 1900-1918, 143 apartments were undertaken at a total cost of \$6,113,300. In this period 31 hotels costing \$4,622,000 were erected. This compared with 128 apartments costing \$12,248,000 for which permits were granted from 1920-1929.

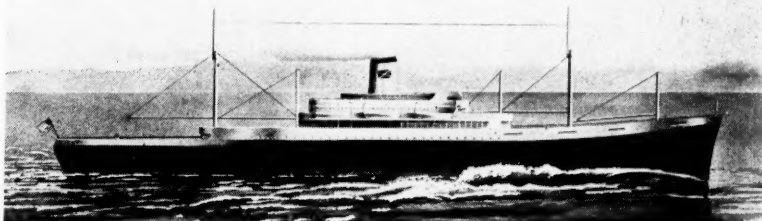
Apartment-house construction in the period 1930 to 1939 had a value of \$4,247,080, representing 165 projects. In this period is included the Edgar Allen Poe Low Cost Housing Project consisting of 26 units and providing for 298 families, for which permit was granted in October 1939 at a value of \$1,029,980.



Value of Building Construction by Years in Millions of Dollars.

In the period since Annexation, 1919 to 1939, apartment construction amounted to \$17,642,000, covering 301 projects and 3 hotels involving an outlay of \$2,485,000.

In the 40-year period, therefore, a total of 444 apartments at a value of \$23,755,380 and 34 hotels costing \$7,107,000 were constructed.



A large part of the United States' present shipbuilding is being carried out in Southern shipyards, and at present several ships are being built for the South African trade. Above is an artist's sketch of the three ships for this trade the Ingalls Shipbuilding Corporation is building at Pascagoula, Miss. From New York to Cape Town the trip will be 17½ days. Principal dimensions of the ships are: displacement, 17,000 tons; overall length, 489 ft.; molded breadth, 69' 6"; and draft loaded, 27' 3".

DEFENSE NEWS FROM WASHINGTON

Washington, D. C., September 30—There can be little doubt that September witnessed more momentous occurrences than any other comparable period in the peacetime history of the United States. During the first week of the month acquisition was announced of naval and air base sites in the Bahamas, Bermuda, Jamaica, St. Lucia, Trinidad, Newfoundland, Antigua and in British Guiana. These were obtained by agreement with the British government for a period of 99 years in exchange for 50 over-age United States destroyers. Shortly after announcement of the exchange Army and Navy experts were on their way to examine the bases, and at this time arrangements are progressing for the necessary construction to make these points usable.

During the same week the War and Navy Departments reached agreements with the Wright Aeronautical Corp., and the United Aircraft Corp., to manufacture sufficient plane engines to meet joint requirements of the Army and Navy for 1941 and 1942. At the same time the War Department contracted for 687 combat planes to cost approximately \$100 million.

\$5,000,000,000 Defense Bill Passed

The second week of the month President Roosevelt signed the \$5 billion total Defense Bill passed by Congress the week before. This is not only the largest defense bill ever passed in the peacetime history of the United States, but it includes funds for the construction of a two-ocean Navy, production of 18,400 airplanes and equipment of an army of 1,200,000 men. Almost immediately after the Bill was signed the Navy placed orders for seven super battleships, eight aircraft carriers, 27 cruisers, 115 destroyers and 43 submarines at a cost of \$3,961 million. Keels of the first ships will be laid within six months and most of the ships will be completed by 1945, using facilities which have not been used since the last war.

Under the same Bill the War Department authorized manufacturers to "tool-up" for a \$1,215 million aircraft program calling for production of 14,394 planes. In addition, the War Department awarded contracts of \$13,600,000 for the Signal Corps, Quartermaster Corps and the Corps of Engineers. The largest single award in this group was \$5,297,775 to

General Electric Co., for radio transmitting equipment. Other large orders included one for \$17,600,000 to equip the Savage Arms Corp., for quantity production of machine guns. Defense schedules call for a peak production of 3,000 planes per month by July 1942. By April of that year, Knudsen estimated, 33,000 planes will have been completed.

Steel Forging Shortage

Because a survey disclosed shortage of forgings other than those used in steel mills, Commissioner Stettinius announced plans for a forty million dollar expansion of heavy forging facilities to meet Army, Navy and Maritime requirements.

While the Senate and House still debated the Conscription Bill the War Department began construction of necessary temporary quarters for housing the draftees at a total cost of \$70 million.

The NDAC reported that, in contrast to World War days, the United States can now produce an ample supply of toluene, essential ingredient of TNT. The report also said experiments indicated production of toluene from petroleum was entirely practical.

The third week of the month saw the President signing the Nation's first peacetime Draft Bill with October 16 set as the day for registration of all men between the ages of 21 and 35, inclusive.

By the end of the third week the House had passed a \$338 million appropriation Bill providing housing for draftees and the President approved loan contracts for construction of housing for families of enlisted and civilian personnel at Army centers throughout the country. The War Department also let a large number of housing contracts, totaling more than \$20,000,000, for construction of camps and cantonments.

War Equipment Purchases

Throughout this same week procurement of equipment was expedited and up to September 20 the NDAC had cleared contracts for defense purchases, totaling more than \$6 billion, an amount which exceeds by 300% the contracts awarded for any entire year of peacetime military procurement. From July 1 to September 7 the War Department disclosed having awarded contracts for more than \$804 million worth of equipment, and in one day since then, September 14, contracts

totaling \$242 million had been awarded. The latter included \$81,400,000 to General Motors for mass production of machine guns, \$20 million to Beale Aircraft Corp., for planes and parts, \$56 million to Republic Aviation Corp., and \$20 million to various firms for clothing and other material.

By September twenty-first, 9,174 of the 18,600 planes authorized by Congress at this session had been ordered. The War Department also announced in the third week of the month plans to locate two large munition loading plants west of the Mississippi as part of a program to build a \$700 million chain of munition factories. Coincidentally, the Navy prepared to construct three drydocks—one in New York, to cost \$10 million; another "somewhere in the Caribbean," to cost \$7 million; and a third, costing \$6,800,000, at South Boston, Mass.

The NDAC estimated that less than half of the more than \$10 billion appropriated by Congress this session for armaments would be spent during the present fiscal year. Marked acceleration of defense spending is expected after January 1 next when the monthly outlay will be about \$500 million. By April the outlay is expected to reach \$600 million monthly and to rise further thereafter when the aviation industry is geared to deliver 1,500 planes a month.

Iron and Steel Embargo

Early in the closing week of the month the President placed an embargo on iron and steel scrap to all countries except Great Britain and those in this hemisphere. The country which will suffer most from this embargo is Japan. Almost simultaneously the Export-Import Bank authorized a \$25 million loan to China. If the Germany-Italy-Japan alliance was intended to intimidate the United States into halting its defense program or stop aid to Great Britain, nothing could have had a more opposite effect, for this country's preparedness program immediately began to gather momentum, high-lighted by the following developments.

The War Department announced plans for strengthening the defense of the Gulf of Mexico and the South Atlantic seaboard with four new bases in Georgia, Florida and Louisiana.

\$500,000,000 for Latin American Trade

Other measures to strengthen hemispheric defense included passage of a bill permitting the Export-Import Bank to lend \$500 million to assist in developing trade with Latin America and permitting the RFC to make available an additional \$1 billion for defense loans in the U. S.

In this connection, Federal Loan Administrator Jones announced that from June 25 through September 18 the RFC authorized 112 loans and commitments

(Continued on page 55)

DREAM HIGHWAY

BY

Charles M. Upham

Engineer-Director,
American Road Builders' Association

PENNSYLVANIA'S Turnpike is fittingly called the "dream highway." Congressmen, leading federal and state officials, militarists and highway experts acclaimed it as such a few weeks ago at the Turnpike Preview. After travelling the 160 miles of super-roadway between Harrisburg and Pittsburgh, these men were quoted as saying, "It is the road of a century" . . . "a revelation in road building" . . . "it is an important addition to our national defense." Congratulations poured from all quarters. The nation's press endorsed it. Praise for Chairman Walter A. Jones and his Turnpike Commission associates was sung from coast to coast.

Senator Sheridan Downey of California told the press after viewing the super-highway, "It is the achievement of a generation. It climaxes highway construction. East-west commerce has a direct, more economical route for transportation between two rich areas. It will generate trade. Industrial wheels will turn faster. Allied industries will feel the benefits of this new commerce.

"This outstanding project came at a proper moment in our economic revival. It proved the need for extensive highway construction. Unemployment was decreased. Men were absorbed from all parts of the country. Machinery to build and move road material was put to work.

Sleeping capital, of which the surplus saving rate annually amounts to about \$8,000,000,000, was brought out of the coffers to turn blueprints into actuality. With the support of both government and public wealth, there should be no hesitancy in carrying the experiment further. Without delay, I believe similar turnpikes should be constructed in every state in the Union. Similar plans could operate with equal efficiency. Such construction, on a long-range basis, would eventually give to America its great interregional system of master motorways.

"Proposals have been made to extend the Pennsylvania Turnpike. No sounder move in highway projects could be made. We need it now more than ever to prepare our roads for the use of motorized and mechanized army equipment. As a member of the Senate Committee on Military Affairs, I know what untold benefits highway progress can bring to military operations."

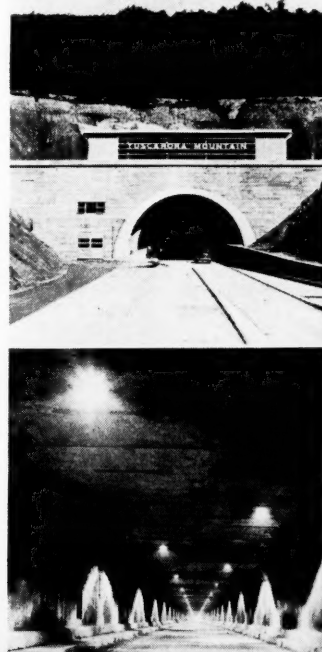
Thomas H. MacDonald, commissioner of the Public Roads Administration, highly commended the Turnpike, with its 300 overpasses to carry traffic over the highways without interrupting the fast flow of traffic on the new road. Cars moving in opposite directions on the four lanes are separated by a 10-foot neutral zone. All cities are by-passed. The maximum ascending grade is but 3 per cent. Curves are long and sweeping with a maximum radius of about 1,000 feet. Clover-leaf

connections are at all points of exit and entrance. Mr. MacDonald said that the extension of the highway to Philadelphia was imperative. Such an undertaking has already been approved by the Pennsylvania state legislature. The project is now under study. The Commissioner's belief is in direct line with that of Congressman Wilburn Cartwright of Oklahoma, chairman of the House Roads Committee, who declared, "We should have roads leading to and from this super-highway to other Eastern cities."

Economically, the Turnpike is the greatest single asset opened to the nation's commerce. It brings the Middle West some 200 miles closer to the Eastern industrial centers. Pittsburgh, the all-important steel capital of the nation, is within a few hours run of the naval shipyards along the East coast. Unlimited tonnage can be transported over the highway. It is constructed for the heaviest traffic. Its surface is of the best material and has been laid according to the latest scientific methods. Structures of all types along the entire route are durable and able to withstand the weight of the heaviest truck and pounding of military equipment.

While the Turnpike sets a goal for future
(Continued on page 60)

Above—The turnpike north of Bedford, Pa., at the half-way point of the new super highway. The curvature does not exceed 6 per cent on any curve and they can be travelled without risk at 80 m. p. h. The steepest grade is 3 per cent and one stretch runs straight for 13 miles. Left—Toll gates, seen in center background, are on the Pittsburgh end of the turnpike where fees are collected on pleasure cars at the rate of one cent per mile. Commercial vehicles will pay from three to four cents per mile. Right; top—Tuscarora Mountain tunnel is one of six tunnels concrete lined with sodium vapor lighting systems (see lower right). Air conditioning systems are constantly in operation. The tunnels are fashioned out of tunnels driven for the South Penn railroad in 1885.



National Defense Program Awards in the South

August 16 to September 15 inclusive

THE total value of contracts and expenditures in the South awarded under the National Defense Program from June 13 to September 15 was \$488,499,273.16. This figure is for Army and Navy contracts, WPA Defense Projects, USIA Defense Housing Projects and Office of Education Defense Training. It does not include an undisclosed amount for 17 destroyers and 8 "naval vessels," nor does it include RFC loans for plants, equipment, labor and materials, nor \$140,969,123 for a number of merchant vessels under construction or to be built for the Federal Maritime Commission.

What the comparable value of defense

program awards was for the rest of the country is not immediately available in our files. However, between July 1 and September 7 (or almost a month less than the period quoted above for the southern total), the War Department alone awarded contracts in excess of \$804,000,000 and on the one day, September 14, contracts totaling \$242,000,000 were awarded. Southern state totals making up the \$488,499,273.16 are as follows:

Alabama	\$4,645,919.94
Arkansas	608,715.48
Florida	22,228,662.90
Georgia	17,891,770.47

Kentucky	3,830,112.76
Louisiana	1,730,674.95
Maryland	13,684,485.70
Mississippi	344,948.59
Missouri	21,504,325.96
North Carolina	13,062,103.76
Oklahoma	2,541,275.76
South Carolina ¹	49,324,499.05
Tennessee	3,634,221.02
Texas ²	39,167,023.48
Virginia ³	293,307,060.77
West Virginia	993,472.57

¹, ² and ³—exclusive of 5 destroyers, 12 destroyers and 8 "naval vessels" respectively whose contract price was not disclosed when awards were made on September 9.

ALABAMA

Unit	Manufacturer	Item	Amount
Qtmtr. Corps	Benham Underwear Mills, Scottsboro	Cotton drawers	\$56,259.51
" "	Gardiner Warring Co., Florence	Woolen drawers	46,124.15
" "	Mercer Runyan Drilling Co., Pensacola, Florida	Artesian wells, Selma	5,538.00
" "	Greeson Mfg. Co., Montgomery	Material for pyramidal tents	1,945.00
" "	Miller & Co., Inc., Selma	Material for pyramidal tents	71,160.00
Supplies & Accts.	West Point Mfg. Co., Shawmut	Cotton duck	24,473.55
" "	Sloss-Sheffield Steel & Iron Co., Birmingham	Pig iron	10,076.10
USHA	Construction loan for 424 dwelling units	Near Maxwell Field Montgomery	1,450,000.00
Supplies & Accts.	United States Pipe & Foundry Co., Birmingham and Bessemer, Ala.	Water pipe	89,837.86
Corps. of Engrs.	Gulf SB Corp., Chickasaw	4 Destroyers	Not available
Qtmtr. Corps	Kilby Steel Co., Anniston	Screw posts	95,268.14
" "	Dorsey Brothers, Elba	Semi-Trailers	37,684.92
" "	Andala Co., Inc., Andalusia	Shirts	31,262.00
USHA	Gardiner-Warring Co., Inc., Florence	Undershirts	61,219.38
	Construction Loan for 208 dwelling Units (2 projects) (Selma Housing Authority)	Army Air Corps, Specialized Flying School, Selma	779,000.00

FLORIDA

Qtmtr. Corps	C. T. Dawkins, Tampa	Gasoline storage and dispensing system, Orlando Airport	6,682.00
" "	Mercer Runyan Drilling Co., Pensacola	Artesian Wells, Selma, Ala.	5,538.00
" "	Biscayne Tent & Awning Co., Miami	Pyramidal Tents	52,100.00
Yards & Docks	I. J. White Co., New York, N. Y.	Bakery equipment at Naval Air Station, Jacksonville	22,985.00
" "	Duke Mfg. Co., St. Louis, Mo.	Kitchen equipment, Naval Air Station, Jacksonville	62,972.00
" "	Aqua Systems, Inc., New York	Extension to Gasoline System at the Naval Air Station, Jacksonville, Florida	246,545.00
Supplies & Accts.	Gibbs Gas Engine Co., of Florida, Jacksonville	Small boats	79,200.00
" "	Miller-Dunn Co., Miami	Diving Apparatus	6,600.00
Qtmtr. Corps	Miller Auto Cruiser Trailer Co., Sarasota	Recruiting Trailers	23,588.91

GEORGIA

" "	Classic City Overall Co., Athens	Denim trousers	31,071.12
" "	Golden City Hosiery Mills, Villa Rica	Cotton socks	15,232.00
" "	Richmond Hosiery Mills, Rossville	Cotton socks	32,127.76
" "	E. R. Partridge, Atlanta	One-piece working suits	4,577.00
" "	Nunnally & McCrean, Atlanta	One-piece working suits	9,095.45
Marine Corps	J. W. Wells Lumber Co., Lumber City	Lumber	2,194.00
Supplies & Accts.	Callaway Mills, LaGrange	Cotton duck	5,377.50
WPA	Construct airport at Southern Field at Americus (City)		274,673.00
Supplies & Accts.	Union Mfg. Co., Union Point	Wool-Cotton Mixture Socks	9,870.00
Yards & Docks	Fairbanks, Morse & Co., Atlanta	Motor Generator Sets at New Building Ways, Navy Yard, Charleston, S. C.	31,371.00
Qtmtr. Corps	Riverside Mfg. Co., Moultrie	Cotton Mattresses	18,250.00
" "	Peerless Woolen Mills, Rossville	O. D. Wool Blankets	1,622,500.00
" "	Perry Bros. Mfg. Co., Athens	Shirts	10,494.75
" "	Carwood Mfg. Co., Winder	Shirts	15,561.00
" "	Big Ace Mfg. Corp., Athens	Shirts	7,680.75
" "	Golden City Hosiery Mills, Inc., Villa Rica	Cotton Socks	38,860.00

KENTUCKY

"	"	Kane Mfg. Co., Louisville	Wool trousers	11,994.00
"	"	Wuest Bros., Louisville	Equipment for field ranges	507.00
"	"	Belknap Hardware Co., Louisville	Equipment for field ranges	124.00
"	"	Louisville Chair & Furniture Co., Louisville	Barrack chairs	100,300.00
"	"	Puritan Cordage Mills, Louisville	Material for pyramidal tents	2,145.99
"	"	Logan Company, Louisville	Steel folding cots	98,400.00
Marine Corps		Martin Bros., Inc., Middlesboro	Khaki webbing	963.00
Supplies & Accts.		Banks Hudson, Danville	American hemp	12,600.00

LOUISIANA

Qtmtr. Corps		The Alden Mills, New Orleans	Woolen socks	9,996.20
Corps of Engrs.		Mente & Co., Inc., New Orleans	Burlap	79,090.00
Qtmtr. Corps		Alden Mills, New Orleans	Woolen socks	9,999.75
"		Frostbrand Furniture Mfg. Co., Shreveport	Canvas folding cots	85,600.00
Corps of Engrs.		Mente & Co., Inc., New Orleans	Burlap Bags	16,675.00
Qtmtr. Corps		Equitable Equipment Co., New Orleans	Steel Barges	37,250.00

MARYLAND

Air Corps		Fairchild Aircraft Division, Fairchild Engine & Aircraft Corp., Hagerstown	100 training airplanes	1,038,300.00
Qtmtr. Corps		A. Brash & Bro., Baltimore	Wool trousers	10,320.75
"		Iron King Overall Co., Baltimore	Denim coats	12,427.15
Chemical Warfare		Clark & Freeland, Inc., Baltimore	Booms	5,422.00
"		Continental Electric Co., Inc., Baltimore	Motors	3,904.00
"		J. T. Roberts & Bro., Inc., Baltimore	Plumbing supplies	1,481.81
"		Baltimore Electric Supply Co., Inc., Baltimore	Steel conduit	1,050.00
"		Maryland Workshop for the Blind, Baltimore	Cotton pillowcases	24,700.00
"		Mt. Vernon Woodberry Mills, Inc., Baltimore	Material for pyramidal tents	273,750.00
"		S. Rosenblum, Inc., Baltimore	Mattress covers	96,903.00
Marine Corps		Baltimore Lumber Co., Baltimore	Lumber	450.00
Yards & Docks		General Elevator Co., Inc., Baltimore	Elevator for extension to building, No. 159, Navy Yard, D. C.	18,595.00
Supplies & Accts.		Mineral Pigments Corp., Muirkirk	Pigments	19,726.00
"		Electric Industrial Equipment & Supply Corp., Baltimore	Electric cable and wire	9,193.48
"		Mt. Vernon-Woodberry Mills, Inc., Baltimore	Cotton canvas	35,192.40
"		Julian P. Friez & Sons, Div. of Bendix Aviation Corp., Baltimore	Radio sound equipment	67,893.60
"		Samuel L. Dell & Co., Inc., Baltimore	Brushes	36,869.04
Marine Corps		Baltimore Lumber Co., Baltimore	Lumber	10,000.00
"		Washburn Crosby Co. (Trade Name) Eastern Div. of General Mills, Inc., Baltimore	Flour	1,062.00
Supplies & Accts.		Revere Copper & Brass, Inc., Baltimore Div.	Brass, copper	14,498.54
"		Mt. Vernon Woodberry Mills, Inc., Baltimore	Cotton duck	712,218.75
"		Carey Machinery & Supply Co., Baltimore	Precision lathes	18,109.35
"		Carey Machinery & Supply Co., Baltimore	Back-gear lathes	5,386.00
Marine Corps		Thomas & Co., Frederick	Subsistence Stores Aircraft Float ..	1,426.00
Supplies & Accts.		Triumph Explosives, Inc., Elkton	Lights	131,859.00
"		Triumph Explosives, Inc., Elkton	Aircraft Engine Starter Cartridges ..	75,430.00
Chemical Warfare		J. T. Roberts & Bro., Inc., Baltimore	Gate valves	1,012.40
"		American Steel & Wire Co., Baltimore	Steel	45,313.00
Medical Corps		The Williams & Wilkins Co., Baltimore	Medical Books	10,625.00
Air Corps		Glenn L. Martin Company, Baltimore	Airplane Accessories	738,555.00
Qtmtr. Corps		S. Rosenblum, Inc., Baltimore	Cotton drawers	20,364.81
Ordnance		Triumph Explosives, Inc., Elkton	Ammunition Components	67,410.00
"		Revere Copper & Brass, Inc., Baltimore	Ammunition Components	4,391.40
Qtmtr. Corps		Mt. Vernon-Woodberry Mills, Inc., Baltimore	O. D. Cotton Duck	39,750.00
"		W. J. Dickey & Sons, Inc., Oella	Overcoating	124,375.00
Signal Corps		Bendix Radio Corp., Baltimore	Radio Compasses	673,906.50
WPA		Rearrange Stock Accounting System, Baltimore ..	Coast Guard	30,718.00

MISSISSIPPI

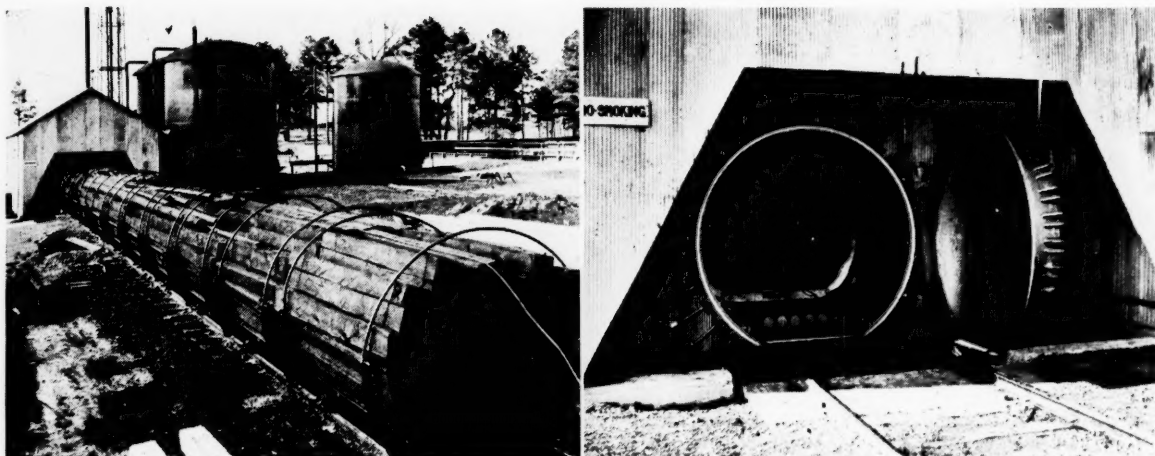
U. S. Maritime Comm.		Ingalls Shipbuilding Co., Pascagoula	4 C-3 Cargo Ships at \$2,945,000.	11,780,000.00
Supplies & Accts.		Crosby Naval Stores, Inc., Picayune	Turpentine	13,696.00
Qtmtr. Corps		Seminole Mfg. Co., Columbus	Woolen Serge Trousers	16,122.09

MISSOURI

Qtmtr. Corps		Rice Stix Dry Goods Co., St. Louis	Cotton Drawers	51,135.70
"		Baker Lockwood Mfg. Co., Kansas City	Pyramidal Tents	58,760.00
"		Henry Evers Mfg. Co., St. Louis	Material for pyramidal tents	1,586.25
"		St. Louis Cordage Mills, St. Louis	Material for pyramidal tents	106,028.35
"		J. A. Lamy Mfg. Co., Sedalia	One-piece Working Suits	7,661.50
"		Brookfield Garrison Mfg. Co., Kansas City	One-piece Working Suits	7,328.91
"		Burlington Overall Mfg. Co., Kansas City	One-piece Working Suits	9,504.00
"		Baker Mfg. Co., Sioux City	One-piece Working Suits	8,236.80
"		H. D. Lee Mercantile Co., Kansas City	One-piece Working Suits	22,250.00
"		Smith & Davis Mfg. Co., St. Louis	Steel Folding Cots	29,700.00
"		The Alligator Co., St. Louis	Raincoats	83,076.84
"		Smith & Davis Mfg. Co., St. Louis	Steel Folding Cots	83,625.00
"		Airtherm Mfg. Co., St. Louis	Tent Stoves	52,640.00
Marine Corps		Pet Milk Co., St. Louis	Evaporated Milk	1,637.00
"		Society Brand Hat Co., St. Louis	Cap frames	3,220.00
"		Mallinckrodt Chemical Works, St. Louis	Pigments	126,420.00
Yards & Docks		Duke Mfg. Co., St. Louis	Kitchen equipment, Naval Air Station, Jacksonville, Fla.	62,972.00

Supplies & Accts. RFC	The Alligator Co., St. Louis	Rain clothes	16,471.00
"	Curtiss-Wright Corp.	Loan authorized for plant sites at Buffalo, N. Y., Columbus, Ohio, and St. Louis, Mo.	34,000,000.00
Marine Corps	Curtiss-Wright Corp.	Loan authorized for labor and ma- terials at above plant sites	15,000,000.00
Supplies & Accts.	Columbian Steel Tank Co., Kansas City	Liquid Containers	10,000.00
Qtmtr. Corps	C. Hager & Sons Hinge Mfg. Co., St. Louis	Hinge Hasps	7,115.85
Corps of Engrs.	Royal Bedding Co., St. Louis	Cotton Mattresses	19,200.00
Qtmtr. Corps	A. Leschens & Sons Rope Co., St. Louis	Wire Rope	15,812.00
"	Rice-Stix Dry Goods Co., St. Louis	Cotton Drawers	25,700.00
"	Ely & Walker Dry Goods, St. Louis	Cotton Drawers	28,044.00
Air Corps	Premium Cap Co., St. Louis	Field Caps	8,108.75
"	Curtiss-Wright Corp., St. Louis Airplane Div., Robert- son	150 Training Planes and Spare parts	4,221,069.46
"	Curtiss-Wright Corp., St. Louis Airplane Div., Robert- son	46 Transport Cargo Type Planes and Spare Parts	12,410,116.42
Qtmtr. Corps	Natkin & Company, St. Louis	Air Conditioning System, Scott Field, Belleville, Illinois	1,125.00
NORTH CAROLINA			
Qtmtr. Corps	Waldensian H. Mills, Valdese	Cotton socks	11,061.14
"	Thomas Mills, Inc., High Point	Cotton socks	14,931.02
"	Maurice Mills, Inc., Thomasville	Cotton socks	79,084.53
"	Erwin Cotton Mills Co., West Durham	Cotton sheets	94,714.50
"	Dize Awning & Tent Co., Winston-Salem	Pyramidal tents	12,705.00
"	Threads, Inc., Gastonia	Material for pyramidal tents	927.73
WPA	Improve Charlotte Municipal Airport (City)		60,177.00
Qtmtr. Corps	Chatham Mfg. Co., Elkin	O. D. Wool Blankets	892,500.00
"	Leaksville Woolen Mills, Charlotte	O. D. Wool Blankets	89,850.00
"	Marshall Field & Co., Spray	O. D. Wool Blankets	267,585.00
"	P. H. Hanes Knitting Co., Winston-Salem	Undershirts	64,375.00
"	Cramerton Mills, Inc., Cramerton	Cloth	308,285.52
"	Ragan Knitting Co., Thomasville	Cotton socks	61,832.50
"	Adams-Millie Corp., High Point	Cotton socks	105,750.00
"	Thomas Mills, Inc., High Point	Cotton socks	29,376.00
"	Waldesian Hosiery Mills, Inc., Valdese	Cotton socks	30,150.00
Qtmtr. Corps	Elliott Knitting Mills, Inc., Hickory	Cotton socks	58,410.00
"	Marshall-Field & Co., Spray	Overcoating	160,735.00
SOUTH CAROLINA			
"	Southern Weaving Co., Greenville	Material for pyramidal tents	1,892.05
Marine Corps	Southern Weaving Co., Greenville	Cotton tape, etc.	2,294.00
Supplies & Accts.	Mt. Vernon Woodberry Mills, Inc., Columbia	Cotton Canvas	75,197.00
"	Cameron Bedding & Mfg. Co., Cameron	Cotton Mattresses	20,349.00
Yards & Docks	Charleston Navy Yard, Charleston	5 Destroyers	Not available
"	Fairbanks, Morse & Co., Atlanta	For Motor Generator Sets at New Building Ways, Navy Yard, Charleston	31,371.00
Qtmtr. Corps	Cameron Bedding & Mfg. Co., Cameron	Cotton Mattresses	18,000.00
Ordnance	S. B. Marks Co., Inc., Ware Shoals	Cleaning Patches	7,188.00
TENNESSEE			
Qtmtr. Corps	Appalachian Mills Co., Knoxville	Woolen undershirts	80,538.40
"	Appalachian Mills Co., Knoxville	Woolen drawers	40,390.40
Medical Corps	Eiselo & Co., Nashville	Clinical thermometers	26,000.00
Qtmtr. Corps	Downcraft, Inc., Memphis	Comforters	50,446.50
Marine Corps	The Springfield Woolen Mills Co., Springfield	Blankets	17,462.00
Qtmtr. Corps	U. S. Bedding Co., Memphis	Cotton Mattresses	17,075.00
"	Nat. Rose Spring & Mattress Co., Memphis	Cotton Mattresses	19,206.00
"	Robinson Mfg. Co., Dayton	Cotton Drawers	19,064.22
"	Rivoli Mills, Chattanooga	Undershirts	7,905.00
"	Hardwick Woolen Mills, Inc., Cleveland	Overcoating	126,936.50
TEXAS			
Qtmtr. Corps	H. W. Zweig Co., Dallas	Denim coats	14,953.92
"	Conro Mfg. Co. of Texas, Dallas	Denim coats	29,882.39
"	Conro Mfg. Co. of Texas, Dallas	Denim trousers	44,111.92
"	H. W. Zweig Co., Dallas	Denim trousers	16,137.32
"	Crawford Austin Mfg. Co., Waco	Canvas folding cots	656,000.00
"	Waco Garments Mfg. Co., Waco	One piece working suits	75,172.50
"	Crawford Austin Mfg. Co., Waco	Canvas cot covers	22,050.00
Supplies & Accts.	Consolidated Steel Corp., Ltd., Orange	12 Destroyers	Not available
"	Levingston Shipbuilding Co., Orange	24 small boats	118,824.00
Qtmtr. Corps	Taylor Bedding Mfg. Co., Taylor	Cotton mattresses	20,174.85
"	Taylor Bedding Mfg. Co., Taylor	Cotton mattresses	375,115.00
"	Dennis Mattress Factory, Denison	Cotton mattresses	17,750.00
"	Crawford-Austin Mfg. Co., Waco	Cotton mattresses	190,921.50
VIRGINIA			
Qtmtr. Corps	Lynchburg Hosiery Mills, Lynchburg	Woolen socks	23,641.20
Chemical Warfare	Virginia Rubatex Corp., Bedford	Outlet valves	3,000.00
Qtmtr. Corps	Lynchburg Hosiery Mills, Lynchburg	Woolen socks	78,087.60
"	J. W. Hurst & Sons, Awnings, Inc., Norfolk	Pyramidal tents	10,000.00

(Continued on page 64)



LUMBER COMPANY ADDS COMPLETE CREOSOTING UNIT

IN order to keep abreast of the modern demand for lumber that has been chemically preserved against rot and deterioration, the Enochs Lumber Co. has added to their plant at Fernwood, Miss., an up-to-date creosoting plant which they operate under the name of Gulf Wood Preserving Corp. The Enochs Lumber Co. operates a saw mill, dry kiln, and planer mill, with an average capacity of 1-200,000 feet per month. Before the new preserving unit was installed they sold "white" lumber including poles, ties, piling, and standard sizes of building materials. If the customer demanded that the lumber be treated it had to be done by some other concern with a resulting loss

in time and profits. Since the bulk of the Lumber Company's business is with public utility companies, railroads, State Highway Departments, Municipalities, and large industrial corporations that realize the value of wood preservation and consider its cost an economy, it became apparent that to serve their clients to best advantage a preserving plant was necessary.

The creosoting is done in a pressure tank 100 in. in diameter by 100 ft. long. The picture above shows a typical load of poles and ties ready to be run into the tank. After the chamber is full, as in the picture at right, heavy doors are shut at both ends and the chamber is filled with creosote oil. The pressure in the chamber

is then increased to 200 pounds per square inch to thoroughly impregnate the wood with oil. After this process is complete the oil is removed and a vacuum is pulled while the wood is still in the chamber. This is done by the use of steam jets, and it insures perfectly dry wood when the chamber is opened. The company specializes in the creosoting of round material and their capacity using fresh cut material averages 12,000,000 feet per year. Using air seasoned lumber this capacity can be stepped up to two or three times this amount.

The creosoting cylinder and the three lap-welded creosote oil tanks were fabricated by the Birmingham, Ala. plant of the Chicago Bridge and Iron Company.

Follansbee Steel Modernizes Mill and Equipment

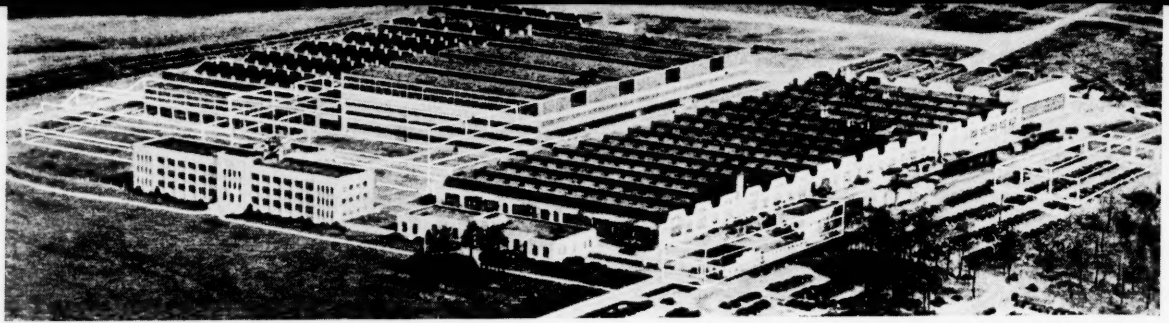
New mill equipment of Follansbee Steel Corporation will be housed in this reconstructed building at Follansbee, West Virginia. Formerly an open hearth building, it has been completely revamped under a \$1,290,000 modernization program into a modern 63 by 1680 foot brick, glass and steel structure to accommodate two new cold-reducing mills and auxiliary equipment, now being installed. Final stage of construction is seen at right center of photograph, with brick work going up and new roofing yet to be laid over a section which will be used for coil storage.

A major object in the changeover from



a mill type to a factory type building was to secure more light. Corrugated steel siding was removed and in the new brick walls large windows of Mississippi Fac-

trolite glass were placed. Corrugated steel roofing was replaced by Follansbee Seamless Roll terne roofing laid over wood sheathing.



Nine Month Contract Total Highest on Record

SOUTHERN construction contracts in September went to the second highest monthly peak of all time, as military and naval construction forged ahead and industrial construction hit the highest point in almost four years. The September total was \$180,939,000, a figure which has not been equaled since June of 1930.

Accumulated contracts for the first nine months of this year were valued at \$847,632,000. Never before, according to statistical records, has a similar period seen a total even near this amount. Public building and construction accounted for all but \$197,672,000 for industrial work, a sizable proportion of which was Government financed, and \$121,767,000 for private building.

Forty-five per cent of the September total, or \$82,811,000, represented public building work, including \$9,043,000 for housing contracts and \$3,904,000 for schools. Thirty-two per cent of the September figure represented the industrial contracts. The remainder was variously divided between private building, highways and bridges, and public engineering, with totals ranging from \$10,877,000 for the former to \$15,439,000 for the latter.

Further preparations against the possibility that the present war abroad might involve the United States resulted in September industrial awards for Southern projects estimated at \$57,933,000. Com-

munication, transportation, power generation and manufacturing all shared in this portion of the second largest total for work initiated in any one month in the South since the gas pipeline construction boom ten years ago.

Major paper plant construction, important aircraft factory awards and a big shipyard headed the variety of projects contracted for and proposed during the month. Developments in the minerals and metal field included a tin smelter for the New Orleans area, a manganese project in Virginia, a number of gasoline processing plants, and an explosives ingredient plant. There were also several large railroad projects.

Among the most important industrial projects were:

An expansion program at the Glenn L. Martin plant near Baltimore, ultimately to cost \$24,000,000, ground for which was broken and bids taken for building construction;

Bag loading facilities estimated to cost \$10,000,000 proposed across the river from the \$25,000,000 Hercules Powder plant at Radford, Va.;

A project to involve expenditure of \$8,000,000 for a seven-fold increase of the Curtiss-Wright plant in the St. Louis, Mo. area;

Award of contract for a \$5,000,000 shipyard at Orange, Texas, for Consolidated

September Contracts near High Monthly Figure— Industrial Awards Up

Steel Corp., holder of a large contract for Navy destroyer construction;

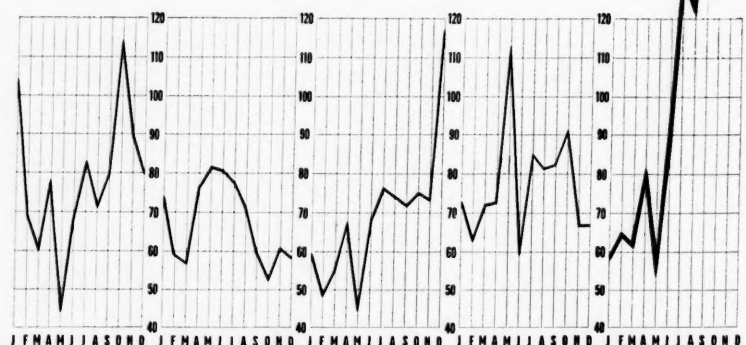
An aircraft manufacturing plant proposed at Austin, Texas, by Consolidated Aircraft Co., San Diego, Calif., estimated cost \$5,000,000;

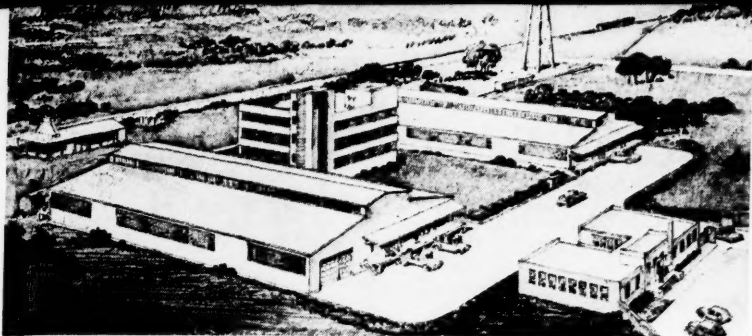
Authorization of a \$5,000,000 financial deal to improve the Bogalusa, La. plant of Gaylord Container Corp.;

Ground was broken early last month as the first step toward rushing construction on a \$20,000,000 expansion program at the Glenn L. Martin aircraft plant at Middle River, near Baltimore. The project now being launched will add almost 400,000 square feet to the present 1,263,000, and is the first of a series of additions which ultimately will raise the floor space to the neighborhood of 3,000,000 square feet. That part of the plant known as the Navy bay will be extended forward 225 feet to bring its size to a length of 685 feet, a width of 300 feet and an overall height of 75 feet with a head clearance of 40 feet. The "C" building, which last year was built within an eleven week period, will be extended 243 feet, thus providing an additional 174,960 square feet. Two areas between the three main factory buildings will add another 19,440 square feet and a new three-story office building will be erected.

Southern Construction Trends by Months

(in millions of dollars)





Statistics of South's Construction

	September, 1940 Contracts Awarded	September, 1940 Contracts to be Awarded	Contracts Awarded First Nine Months 1940	Contracts Awarded First Nine Months 1939
PRIVATE CONSTRUCTION				
BUILDING				
Assembly (Churches, Theatres, Auditoriums, Fraternal)	\$1,710,000	\$1,985,000	\$15,516,000	\$12,715,000
Commercial (Stores, Restaurants, Filling Stations, Garages, etc.)	1,976,000	2,482,000	23,725,000	23,579,000
Residential (Apartments, Hotels, Dwellings)	5,970,000	8,119,000	75,381,000	72,754,000
Office	1,221,000	1,140,000	7,145,000	13,668,000
INDUSTRIAL	\$10,877,000	\$13,726,000	\$121,767,000	\$122,716,000
PUBLIC CONSTRUCTION	\$57,933,000	\$66,029,000	\$197,672,000	\$89,420,000
BUILDING				
City, County, State, Federal	\$69,864,000	\$77,993,000	\$211,460,000	\$97,984,000
Housing	9,043,000	14,699,000	72,298,000	56,259,000
Schools	3,904,000	8,766,000	20,531,000	56,027,000
ENGINEERING	\$82,811,000	\$101,458,000	\$304,289,000	\$210,270,000
Dams, Drainage, Earthwork, Airports ...	\$4,035,000	\$11,153,000	\$48,905,000	\$50,587,000
Federal, County, Municipal Electric ...	10,719,000	26,024,000	53,925,000	71,885,000
Sewers and Waterworks	685,000	11,417,000	8,176,000	23,590,000
ROADS, STREETS AND BRIDGES	\$15,439,000	\$48,594,000	\$110,106,000	\$146,062,000
	\$13,879,000	\$48,230,000	\$113,789,000	\$132,825,000
TOTAL	\$180,939,000	\$278,037,000	\$847,623,000	\$701,293,000

Norfolk & Western Railway's \$4,700,000 yard improvement program at Roanoke, Va., to extend over a two-year period, and a \$600,000 warehouse proposed at Sewell's Point;

Award of equipment and construction contracts for the \$4,000,000 paper plant of St. Mary's Kraft Corp., St. Mary's, Ga.;

Start of excavation for the \$4,000,000

Work started late in August on the \$350,000 paint and varnish plant (above) at Houston, Texas, for Pittsburgh Plate Glass Co. Being built by George P. O'Rourke Construction Co., local contractors, the new plant will be a complete unit manufacturing a full line of paints, varnishes and lacquers. Its four main buildings, auxiliary units and storage tanks are being located on a 21-acre site. Below—Construction is progressing according to schedule on the \$350,000 expansion at the Dallas, Texas assembly plant of Ford Motor Co. Being rushed to completion in four months instead of one year as originally planned, the program now under way will require 250 more workers when the plant is at peak operation, thus adding 50 cars to the plant's present capacity of 300 cars daily. The addition is to be 280 feet long and 300 feet wide, of one-story reinforced concrete, structural steel and brick construction, with steel sash. A new type roof will provide natural lighting.

Vultee Aircraft plant extension at Nashville, Tenn., as plans were rushed on the balance of the work;

Virginia Electric & Power Company's Reeves Avenue power plant addition at Richmond, cost \$4,000,000;

Contracts for generators and boilers let by Consolidated Gas, Electric Light & Power Co., Baltimore, for a third large power unit, reported for its Riverside station;

Appalachian Electric Power Company's plan to double capacity of its Cabin Creek plant, near Charleston, W. Va., estimated cost \$3,000,000;

Florida Power & Light Co., St. Petersburg, plans a \$3,000,000 expansion program, with initial work to cost \$8,000,000.

A \$2,000,000 extension of the South's only cigarette paper plant at Pisgah Forest, N. C., covered under contracts let early in the month by Ecusta Paper Corp.;

Contract for a \$2,000,000 expansion and modernization program for Magnolia Petroleum Co., Fort Worth;

A \$2,000,000 refinery to be built by W. R. Davis, Houston, Texas, contracts for which were let;

Expenditure of \$1,500,000 by American Manganese Corp., to construct a refining (Continued on page 60)

A WINNING COMBINATION FOR DOOR SATISFACTION

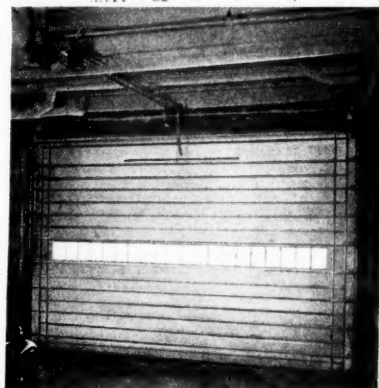


**STEEL.....
FOR DURABILITY**

**GLASS.....
FOR VISIBILITY**

**KINNEAR RoL-TOP
FOR EFFICIENCY
AND DEPENDABILITY**

A new type of all-metal door section makes the Kinnear Steel RoL-TOP the ruggedest, longest lasting door of its type ever developed—and the lowest in maintenance and repair costs! It can't sag, warp, split, or pull apart. It gives extra protection against fire, riot, theft, weather and wear! And it enables you to have as many glass sections as you want for light and visibility. The all-steel RoL-TOP



Typical RoL-TOP installations that show varied use of glass sections. Door at right is in new parking garage, Radio City.



operates easily on special ball bearing rollers that move freely in rigid, continuous-angle mounted tracks. It saves floor and wall space, raises over ice, snow or swollen ground, remains out of the way and out of reach of damage when open. Easy and economical to install in any doorway, with motor or manual control. Write for details. THE KINNEAR MANUFACTURING COMPANY, 1600-80 FIELDS AVENUE, COLUMBUS, OHIO.

**KINNEAR
ROLLING DOORS**

New Industrial Plants and Expansions in the South During September, 1940

Contracts Awarded

Ala., Anniston—Anniston Manufacturing Co.; weave shed extension and boiler installation	\$500,000
Ala., Decatur—Nebraska Consolidated Mills Co.; flour mill	
Ala., Evergreen—Clawson Manufacturing Co.; venetian blind plant	
Ark., Batesville—Arkansas Power & Light Co.; power line	500,000
Ark., Harrison—Eureka Poultry Co.; plant	25,000
Ga., Atlanta—Atlanta Broom Co.; alterations and additions	
Ga., Atlanta—Atlanta Tallow Company; warehouse, office, garage	15,000
Ga., Atlanta—Georgia Power Co.; addition	100,000
Ga., Gainesville—Owen-Osborne, Inc.; heating and sprinkler systems	
Ga., Macon—Georgia Power Co.; steam plant superstructure	
Ga., Monroe—Walton Cotton Mill; warehouse	11,400
Ga., Moultrie—Swift & Company; packing plant	
Ga., St. Marys—St. Marys Kraft Corp.; pulp mill	4,000,000
Ky., Louisville—Reynolds Metal Co.; tubing plant	200,000
Ky., Maysville—January & Wood Co.; automatic sprinkler system	
La., Alexandria—Cotton Brothers; bakery addition	45,000
La., Fayette—Continental Oil Company; service station	20,000
La., Shreveport—Texas & Pacific Railroad Co.; passenger station	300,000
Md., Baltimore—Baltimore & Ohio R. R.; equipment	
Md., Baltimore—Baltimore & Ohio R. R.; hay storage shed	
Md., Baltimore—Bethlehem Steel Co.; plant expansion	125,000
Md., Baltimore—Continental Can Co.; building	17,000
Md., Baltimore—Locke Insulator Corp.; storage building	24,000,000
Md., Baltimore—Glenn L. Martin Co.; factory addition	
Md., Baltimore—Meadow Gold Ice Cream Co.; addition	
Md., Baltimore—Westinghouse Electric & Manufacturing Co.; assembly building	50,000
Md., Dundalk—Baltimore Pure Rye Distilling Co.; bottling plant and distillery	
Miss., Hattiesburg—Hattiesburg Creamery & Produce Co.; creamery	
Mo., St. Louis—American Car & Foundry Co.; paint shop addition	400,000
Mo., St. Louis—Klingbill Realty Co.; factory addition	50,000
N. C., Charlotte—A. B. Fitzgerald; bottling plant	25,000
N. C., Charlotte—Queen City Coach Co.; bus terminal	96,790
N. C., Charlotte—Swinson Food Products Co.; addition	
N. C., Charlotte—Warren Transfer Company; warehouse	30,000
N. C., Durham—Erwin Cotton Mills; equipment	
N. C., Greensboro—Greensboro Overall Co.; plant	
N. C., Hillsboro—Eno Cotton Mills; weave shed remodeling	
N. C., Liberty—Liberty Hosiery Mills; additions & extensions	
N. C., Pisgah Forest—Eusta Paper Corp.; extension	2,000,000
N. C., Thomasville—Maurice Hosiery Mills; additions	
Okla., Oklahoma City—Oklahoma Railway Co.; buses	
South Carolina—Piedmont & Northern R. R. Co.; improvements	300,000
Tenn., Columbia—Monsanto Chemical Co.; improvement and expansion	35,000
Tenn., Fayetteville—Kraft Cheese Company; plant addition	
Tenn., Nashville—Southern Bell Telephone & Telegraph Co.; office and warehouse	25,000
Tenn., Nashville—Tennessee Central Railway Co.; storehouse and office	4,000,000
Tenn., Nashville—Vulcan Aircraft, Inc.; plant	22,000
Tenn., Nashville—Werthan Bag Co.; boiler plant building	
Tenn., Winchester—Southern Bell Telephone & Telegraph Co.; building	2,000,000
Texas—W. R. Davis; recycling plant	
Tex., Arp—Independent Refining Co.; refinery improvements	16,000
Tex., Beaumont—T. S. C. Motor Freight Lines, Inc.; freight terminal	80,000
Tex., Brenham—Southwestern Bell Telephone Co.; building	17,900
Tex., Bryan—Eagle Printing Co.; printing building	
Tex., Cleburne—Central Freight Lines, Inc.; freight depot	200,000
Tex., Dallas—Nichols Brothers Co.; garage	32,581
Tex., Dallas—Red Arrow Freight Co.; terminal	
Tex., Fort Worth—Magnolia Petroleum Co.; expansion program	2,000,000
Tex., Fort Worth—Southern Household Products Co.; expansion program	
Tex., Houston—Eastern States Petroleum Co.; dock	14,000
Tex., McAllen—Rio Grande Valley By-Products Corp.; metallic pectinate plant	48,992
Tex., Refugio—W. M. Leifwy; cold storage locker plant	35,000
Tex., San Antonio—Brown Cracker & Candy Co.; warehouse addition	
Tex., San Antonio—San Antonio Portland Cement Co.; silos	34,660
Tex., San Antonio—San Antonio Products, Inc.; plant	
Va., Culpeper—Rochester Ropes, Inc.; metal rope plant	80,000
Va., Richmond—Crawford Manufacturing Co.; factory	40,000
Va., Warrenton—Phipps Printing Plant; plant	15,000
Va., Warrenton—Fauquier Democrat; publishing plant	20,000
W. Va., Charleston—Southern Chemical Company; plant	40,000
W. Va., Huntington—Ashland Oil & Refining Co.; plant expansion	650,000
South—Norfolk & Western Railway; equipment	
South—Southern Railway; equipment	3,700,000

Contracts Proposed

Ala., Athens—Henegar Brothers; cheese plant	
Ala., Fairfield—Tennessee Coal, Iron & Railroad Co.; bath-house additions	\$35,000
Ala., Gadsden—Republic Steel Corp.; soaking pits' improvement	
Ark., Everton—Lime Products Co.; plant	
Ark., Fort Smith—Arkansas-Oklahoma Smokeless Coals, Inc.; preparation plant	34,000
Ark., Wynne—Ware Watson; canning plant	
D. C., Washington—Capital Transit Co.; buses	1,636,000
Fla., Miami—Fuchs Baking Company; alterations and additions	57,879
Fla., Palmetto—Palmetto Canning Company; extension	10,000
Fla., Pensacola—Clarence R. Bitting; shipbuilding plant	
Fla., Pensacola—Diraplane Manufacturing Corp.; plant	200,000
Ga., Atlanta—Seaboard Air Line Railway; boiler house and shop building	
Ga., Griffin—Southern Bell Telephone & Telegraph Co.; building	40,000
Ga., Monroe—Piedmont Refrigeration Association; meat curing plant	
Ga., Porterdale—Bibb Manufacturing Co.; addition	
Ga., West Point—West Point Manufacturing Co.; addition	
Ky., Louisville—Louisville Railway Co.; modernization program	3,000,000
Ky., Louisville—Southern Bell Telephone & Telegraph Co.; building	
La., Bogalusa—Gaylord Container Corp.; improvements and additions	5,000,000
La., Ruston—Tri-State Transit Co.; bus station	16,719
Md., Baltimore—Baltimore & Ohio R. R.; fuel oil stations	
Md., Baltimore—General Pontiac Corp.; sales and service building	
Md., Baltimore—Gunther Brewing Co.; bottling plant	
Md., Hagerstown—Fairchild Aircraft Corp.; plant expansion	
Miss., DeKalb—K. & M. Lumber Company; planing mill	10,000
Mo., Kansas City—Security Stove & Manufacturing Co.; plant	
Mo., Kansas City—Waxide Paper Co.; addition	
Mo., St. Louis—Stout Sign Company; plant	
N. C., Charlotte—Carolina Truck & Trailer Co.; building	30,000
N. C., Charlotte—Southeastern Construction Co. (Contractor); bus terminal	
N. C., Fayetteville—Owen Electric Company; increase in facilities	
N. C., Graham—Russell & Watkins Corp.; knitting & finishing plant	
N. C., North Wilkesboro—Home Chair Company; plant	
N. C., Raleigh—Southern Bell Telephone & Telegraph Co.; conduit lines	
N. C., Reidsville—Z. Griff Smith; lumber plant	
Tenn., Carthage—Southern Bell Telephone & Telegraph Co.; building	25,000
Tenn., Columbia—Southern Bell Telephone & Telegraph Co.; improvements	45,000
Tenn., Memphis—Dixie Steel Manufacturing Co., Inc.; plant	
Tenn., Memphis—Feet Hickory Co.; handle plant	
Texas—Continental Oil Company; gasoline and repressuring plant	500,000
Texas—Lone Star Gas Company; gasoline and recycling plant	200,000
Texas—United Carbon Co.; plant	
Tex., Angleton—Ben D. Cannan & Associates; locker plant	
Tex., Austin—Consolidated Aircraft Corp.; plant	5,000,000
Tex., Bay City—Southwestern Bell Telephone Co.; telephone plant	75,000
Tex., Edinburg—Gulf States Oil Corp.; recycling plant	250,000
Tex., Fort Worth—Texas Steel Company; pattern shop	
Tex., Freeport—Southwestern Bell Telephone Co.; addition and improvement	22,000
Tex., Houston—Humble Oil & Refining Co.; toluene plant	
Tex., Houston—Southwestern Bell Telephone Co.; garage addition	19,000
Tex., Levelland—Motor Fuels Corporation; refinery improvements	100,000
Tex., Lufkin—Southland Mills, Inc.; plant addition	5,000,000
Tex., San Antonio—Frito Company; potato chip plant	
Tex., Uvalde—Coca Cola Bottling Co.; plant	
Virginia—Chesapeake & Potomac Telephone Co.; plant construction and equipment	1,818,000
Va., Christiansburg—Pepsi-Cola Bottling Co.; plant	35,000
Va., Lynchburg—American Manganese Corporation; manganese development	1,500,000
Va., Lynchburg—Mead Corporation; laminating board plant	
Va., Martinsville—E. I. duPont de Nemours & Co.; synthetic yarn plant	
Va., Norfolk—Norfolk Southern Bus Corp.; terminal	70,000
Va., Norfolk—Seaboard Air Line Railway; equipment	1,000,000
Va., Radford—Norfolk & Western Railway; bag loading plant	10,000,000
Va., Roanoke—Roanoke Railway & Electric Co.; buses	
W. Va., Dunbar—Southern Plastic Molding Corp.; plant	
W. Va., Huntington—International Nickel Co.; plant expansion	102,000
South—Continental Can Company; expansion and improvements	15,000,000
South—Norfolk & Western Railway Co.; warehouse	600,000
South—Seaboard Air Line Railway; equipment	



a Call Ahead...



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TUESDAY



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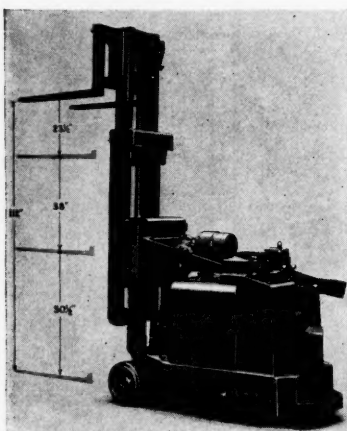
Whenever you travel, whatever your job, for efficiency's sake remember: telephone appointments prevent disappointments!



New Ways of Doing Things

Fork Truck Elevates Loads to Three Levels

Capable of elevating loads on skids or pallets to three levels instead of one, a new type of fork truck, ERS-3T, has been introduced by Elwell-Parker Electric Company, Cleveland, Ohio. The elevating mechanism is built in three telescoping sections, and when the telescoping members are lowered the overall height of the truck is but 74 inches. Thus the loaded truck can pass through doorways or beneath low overhanging pipes or conveyor systems. When uprights are completely lowered, the forks just clear the floor. At the operator's will, forks can be raised to 50½ inches on the first lift, to 88½ inches on the second, and to 112 inches on the third. The rate of upward travel is 20 feet per minute with a 1500-pound load. The main driving motor is an Elwell-Parker 4-pole, series wound, capable of a 500 per cent overload. It is



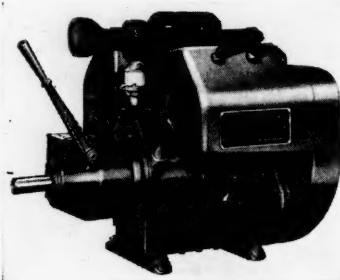
Elwell-Parker ERS-3T Fork Truck

direct connected to a free coasting worm and gear, and drives the two wheels nearest load, assuring ample traction. The hoist is operated by a separate motor, controlled by a push-button, and may be tilted 15 degrees backward or 5 degrees forward from vertical, while the two hoist chains have a safety factor of 9 and either will handle the load. Vertical uprights and gearing are designed to prevent sideways. The hoist is provided with ratchet device which operates when the descending load meets an obstruction. A solenoid brake locks the hoist in any position.

Light Weight Air-Cooled Engine

To meet modern power requirements for dependable, efficient, light weight engines, the Wisconsin Motor Corporation of Milwaukee, Wis., has introduced its Model VE4 featuring air-cooling, Timken roller main bearings, light weight and compactness. Because of its V-type construction, the overall length and height of

the unit are kept at the extreme minimum. V-type construction also adds to the ruggedness of the engine because a shorter crankshaft and crankcase are used. By reducing overall dimensions, material and labor costs are reduced, making possible the production and sale of the engine at a very low price per horsepower. The VE4 is a four cycle,

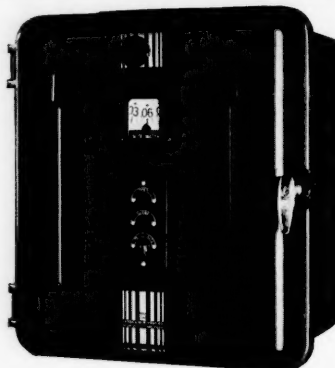


Model VE4 Four Cylinder Air-Cooled Engine

four cylinder, V-type, heavy duty, air-cooled engine designed for any class of work within its power range. Positive cooling is obtained from a large fan cast in the flywheel which forces a strong blast of air across and around the cylinders and head. The oiling system is entirely self-contained, and all parts are automatically lubricated. A heavy dynamically balanced crankshaft with unusually long connecting rods and light weight pistons, insures smoothness at all speeds, the crankshaft being mounted on Timken roller bearings, front and rear, while a mechanical flyball type governor provides close regulation at any desired speed. The engine is arranged for the application of an efficient type oil filter to keep the crankcase oil clean and in good condition, thus adding to the life of the unit.

Industrial Furnace Pressure Controller

Flexibility of installation, convenience of operation and ease of adjustment are stressed in a completely redesigned in-



Redesigned Leeds and Northrup Industrial Furnace Pressure Controller

dustrial Furnace Pressure Controller announced by the Leeds & Northrup Company of Philadelphia, Pa. Mechanism is housed in a rigid, die-cast case, similar in appearance to that of most Micromax instruments. Designed primarily for flush-mounting, it can be supplied for surface mounting. Controller and related equipment can be panel-mounted at the factory and shipped completely connected and wired to the user's plant. A selector switch and push-button station are built into the controller door as an integral part of the instrument. Strongly built, this new controller requires negligible maintenance. It combines with a motor-driven interruptor, a relay, signal lights and a motor drive unit to form a complete L&N system, designed to control the pressures of metallurgical and other industrial furnaces.

Ingersoll-Rand Jackhamer Jackleg

Ingersoll-Rand Company of Phillipsburg, N. J., announces a new and novel air-fed rock drill mounting, known as



New Ingersoll-Rand Jackleg in Operation with Jackhammer

the Jackleg, designed for use with Ingersoll-Rand Jackhamers. The mounting helps to support the drill, absorb the recoil and feed it forward as the hole is drilled into the rock. Larger and faster Jackhamers may now be used on horizontal holes. Instead of the usual procedure of holding up the drill by hand and pushing it forward as it drills into the rock, the operator using the Jackleg only has to exert a slight downward pull on the handle of the Jackhammer to balance the lifting force exerted by the pneumatic feed of the Jackleg. With the Jackleg, it is claimed that drilling footage may be increased 50 per cent in some cases, while miners are less tired at the end of the shift and accidents are thereby reduced. In addition to other advantages, the Jackleg weighs only 35 pounds and may be easily regulated by a conveniently located pressure throttle.

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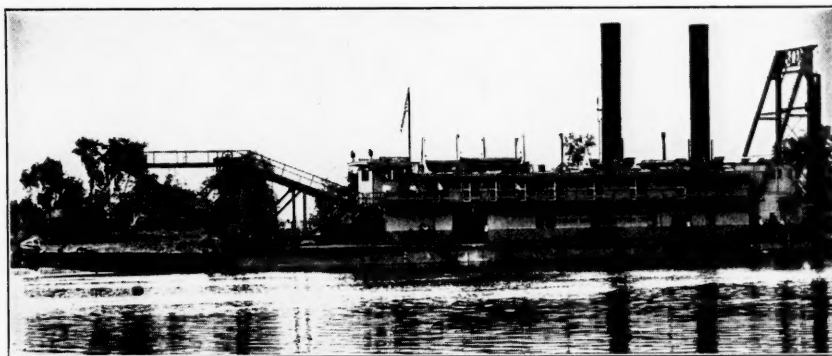
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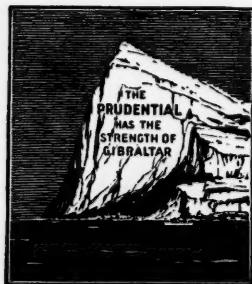
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FINANCE

» » » and « « « INDUSTRY

Taxpayers Organizations

Increases in the public debt, both Federal debt and that of states and cities, with resulting tax increases, have intensified activity on the part of taxpayers' organizations in demanding reductions in public budgets. To meet the defense cost which means more debt and more taxes, the demand for economy on the part of political management grows insistent.

It is stated that 1200 local organizations in various states, sponsored by Tax Foundation, Inc., have secured substantial reductions in local public expenses. The arguments which taxpayers presented to the New York Legislature in 1939 resulted in a reduction of \$26,500,000 in what was proposed as a spending program for the state for that year. Also, there was a reduction gained of \$5,000,000 in the 1940 budget.

Throughout the country communities are hard pressed and in many cases the effort for reduction of expense by those who pay the bill has brought about a balanced budget, and a cash surplus toward the payment of obligations.

An account of what has been accomplished, as told in Bulletins issued by Tax Foundation, Inc., makes interesting reading.

The Course of Prices

So far fifteen billion dollars have been appropriated for defense, and it may be expected much bigger sums will be required before the job is finished.

As the vast spending program progresses, the trend of commodity prices will be closely watched. The billions being spent and finding their way into trade channels ordinarily would bring a rapid increase in prices. How effective the Defense Advisory Commission may be in exercising control over what it may decide as unwarranted increases, remains to be seen.

Treasury needs will require borrowing large sums before long and bank deposits will increase accordingly, with a resulting broader base for credit inflation. As prices go up labor will expect higher pay. That in turn will bring more buying which always happens on a rising market.

Broaden Income Tax Base

To help in paying the defense bill as we go along, the income tax base should be broadened to include lower bracket incomes. Englishmen pay 42½ per cent of their salaries and sooner or later the general public, as the defense effort grows, must pay a larger share of the cost. Besides giving the Government much needed revenue, it would have the further desirable effect of causing a larger part of the population to think more earnestly about what Government is costing.

New Bonds

Financial markets expect this month a larger total of bond offerings from railways, utilities and municipalities than has been seen for some time. They are coming from different cities and sections of the country, and reflect anticipated improvement in the investment market. Not all of them are for refunding, but are for enlarged plant operations and improvement undertakings of various kinds.

(Continued on page 52)



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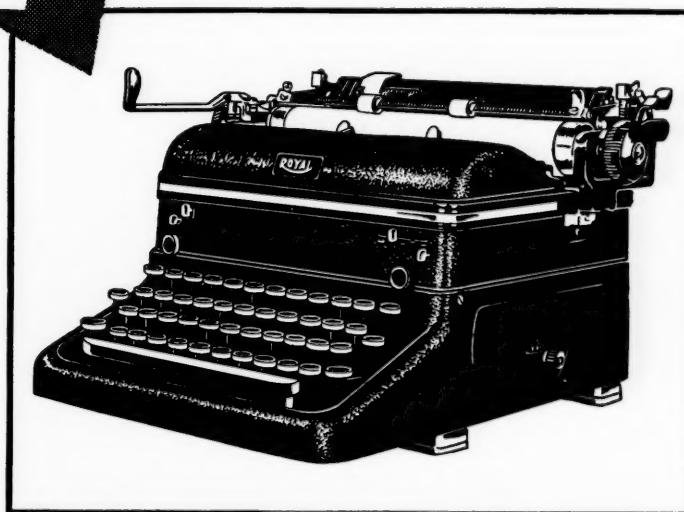
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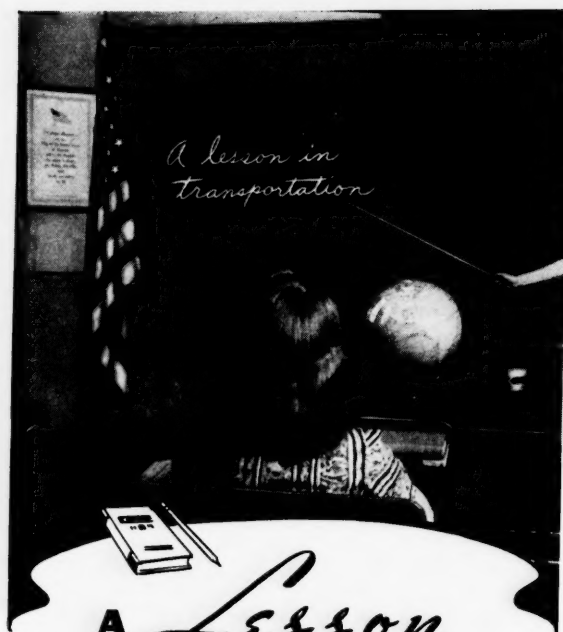
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A. R. King, Manager



A Lesson IN EXPERIENCE

THIS little lady is learning her transportation lesson and the vital part the railroads play in the everyday life of the nation, in the classroom. Shippers and receivers of freight learn by actual experience.

You can learn, and prove to yourself that merchandise moves with greater safety, speed, dependability and economy when your freight is shipped by rail over the Norfolk and Western Railway — between the Midwest and the Virginias and Carolinas and between the North and the South.

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NORFOLK and WESTERN

Railway

PRECISION TRANSPORTATION

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Finance and Industry

(Continued from page 50)

U. S. Exports to British Empire

The National City Bank, in its recent circular referring to increasing British purchases in America, calls attention to the fact that in August we shipped to Great Britain \$125,000,000 of our goods, which was two and a half times that of three months previous. The other countries of the British Empire also have been buying increasing amounts of war materials and equipment, and the total for the Empire reached \$225,000,000, or nearly 65 per cent of total exports of the United States for that month.

Taking into account the orders that are being placed in increasing amounts, it is estimated that the British Empire may be taking by next summer, perhaps as much as \$315,000,000 in goods monthly, or 70 per cent of our total probable exports at that time.

Railroad Earnings

Railroad earnings are on the upgrade. The Association of American Railroads, in a report September 30, says that net railway operating income of Class I roads for the first eight months of 1940 showed a net of \$366,257,827, or at the annual rate of 2.34 per cent on their property investment. The first eight months of 1939 showed 1.72 per cent.

Gross operating revenues in the same period jumped to \$2,743,000,000 as compared to \$2,480,961,000 in the preceding year, or an increase of 10.6 per cent.

The car service division of the Association has recommended that the carriers get 100,000 new freight cars within the next twelve months in order to meet the needs of increasing traffic. Railroads today own 30 per cent fewer freight cars than they did in 1918. Total carrying capacity is 15 per cent less, but on the other hand speed of movement has increased 70 per cent.

Deficit Financing

The American Bankers Association, at their meeting in Atlantic City, listened to an address by president Robert M. Hanes of North Carolina, in which he said:

"But unless we put an end to deficit financing, to profligate spending, and to indifference to the nature and extent of government borrowing, we shall surely take the road to dictatorship."

"By subtle propaganda, special pleading and similar devious devices, the American people have been persuaded to surrender more and more of their independence to the direction and control of government. This is an evil that feeds upon itself."

A Large Mail Bill

Sending out Government mail is an expensive item to taxpayers. The abuse of the free mail privilege truly has reached scandalous proportions. *Nation's Business* calls attention to the cost of postage alone, if postage had been paid on what the Government distributed, as being \$38,231,125 in 1939. In 1930, Government postage would have been only \$8,347,505.

An amendment to the Post Office appropriation for 1940 required the weighing of all Government mail with quantities classified by department and independent agencies.

Postage, including handling and delivering, are not the big items of cost of what is mailed under Government frank. The total of producing the material with carrying charges added, is estimated as being close to \$1,000,000,000.

MANUFACTURERS RECORD FOR

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MERRY-GO-ROUND?

Bob Foster is sales manager for a product widely used in offices. Wishes his company could get somewhere. Tells you, if you know him well, that except for part of '36 and '37, business has been just up and down, and round and round, for nine years.

\$\$\$ "Every time my boys bring in a little more than usual," he complains, "one of our big customers switches his business, and we're exactly where we were."

\$\$\$ "We put out a swell, new feature. Competitors match it with something else."

\$\$\$ "Our selling costs are high, but try to get them down."

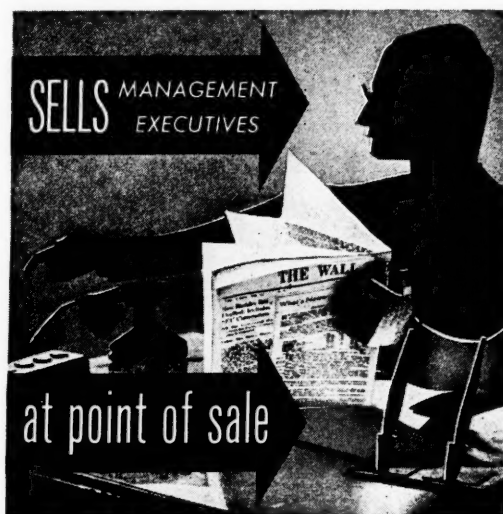
\$\$\$ What Bob Foster needs—and what you yourself need if, like him, you sell to executives—is the *low-cost merchandising power* of The Wall Street Journal.

\$\$\$ 86 per cent of its circulation is read by executives at their desks—your *point of sale*. Your advertising in it means greater con-

sciousness of your product in the bigger companies where bigger needs are filled.

\$\$\$ Such impact on the right minds at the right time cuts selling costs by lifting volume; helps you off the merry-go-round.

WALL STREET JOURNAL



What to do about the **SNOOPER!**

SNOOP (*snoōp*), v.i. [*D. snöepēn*]

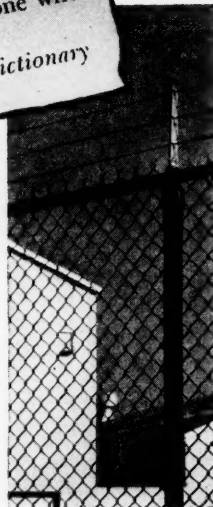
To look or pry about in a sneaking or meddlesome manner; also to search pryingly for information, etc.—**SNOOPER**(*er*), n. one who snoops.

—Webster's Dictionary

NOW is the time to keep prying eyes away from your plant—to be sure that burglars, trespassers or others who have no business on the premises are kept out . . . to prevent the work of firebugs. It's too big a job for your watchman to do alone. But you can have a record of every man who enters your plant—and every piece of material that goes out when the watchman has the help of U-S-S Cyclone Fence.

Cyclone Fence provides easy entrance for people you want, at conveniently located gates. And it politely, but forcefully refuses admittance to people you don't want in your plant.

Get the facts now about protection of sturdy, long-lasting Cyclone Fence. We'll gladly make a recommendation and give a free estimate with no obligation to you. Remember, Cyclone leads the field in sales, so our prices must be right.



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Book on Fence



Send for our free 32-page book that tells all about fence. Cramped full of illustrations. Shows 14 types—for home, school, playground, and business. Whether you need a few feet of fence or 10 miles of it, you need this book.



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Standard Fence Company, Oakland, Calif., Pacific Coast Division
United States Steel Export Company, New York

UNITED STATES STEEL

INDUSTRIAL NEWS

Chicago Pneumatic Tool Appointments

Chicago Pneumatic Tool Company, New York City, announces the appointment of P. J. Christy as manager of its office at Philadelphia, Pa., effective August 1, 1940. Mr. Christy succeeds A. M. Brown who has been transferred to Washington, D. C., as manager of a new branch recently opened there. The company also announces the appointment of C. A. Diehl as manager of the Houston, Texas, office.

United States Steel Subsidiaries to Exhibit at National Metal Congress

With special sections devoted to developments in steel hardening processes and machinability, United States Steel Subsidiaries will present a joint exhibit at the National Metal Congress in Cleveland, Ohio, October 21-25. The exhibit will occupy 4,000 square feet of floor space in the hall at the foot of the stairs leading from the Registration desk. A corps of engineers, metallurgists, and trouble shooters will be on hand to cooperate with manufacturers seeking practical ways out of new manufacturing developments or trying to add to the efficiency of their metalworking operations. Product samples will be available and experts will be in attendance to discuss hardening problems with those interested. Cooperating in the joint exhibit will be American Steel and Wire Company, Carnegie-Illinois Steel Corporation, Columbia Steel Company, Cyclone Fence Company, Scully Steel Products Company, and Tennessee Coal, Iron and Railroad Company, all subsidiaries of United States Steel Corporation.

Champion Paper and Fibre Atlanta Office

The Champion Paper and Fibre Company, Hamilton, Ohio, has opened a new sales office in Atlanta, Ga., "to give more intensive coverage of the South by assigning to Atlanta part of the territories now being covered by the company's offices in Philadelphia and St. Louis." The Atlanta office will be at 1406 First National Bank Building, in charge of W. D. Gillespie and W. B. Huger, both of whom have been employed by Champion for several years. Mr. Gillespie goes to Atlanta from Canton, N. C., and Mr. Huger from the sales office in Philadelphia. Other Champion sales offices are in New York, Chicago, Cleveland, Boston, and Cincinnati.

P&H Welder Agent in Kansas City

The Harnischfeger Corporation of Milwaukee, Wisconsin, has appointed the Faeth Company, 1127-1131 W. 8th Street, Kansas City, Mo., as agent for its line of welders and electrodes. The new agent will operate in the Kansas City territory under the supervision of C. Powell.

Leeds and Northrup Promotions

Leeds & Northrup Company, Philadelphia, Pa., announces the appointment of W. Richison Schofield, formerly chief engineer of the company, as director of engineering, and the appointment of John W. Harsch as chief engineer, succeeding Mr. Schofield. Mr. Harsch was advanced from assistant chief engineer and this position has been filled by the promotion of John F. Quereau. Joining Leeds and Northrup in 1916, Mr. Schofield has held the position of chief engineer since 1928. Mr. Harsch joined the company in 1924 and in 1928 became assistant chief engineer. He is largely responsible for the design of the Homo tempering and Homocarb carburizing furnaces. Mr. Quereau has been with the company since 1929 and is the inventor of a number of thermocouple and resistance thermometer devices.

14th National Exposition of Power and Mechanical Engineering

With the opening of the 14th National Power Show nearly two months away, more exhibitors have already reserved space for the Exposition than were included in the total enrollment at the last show two years ago, according to the management. The volume of early reservations indicates that the coming show, officially designated as the 14th National Exposition of Power and Mechanical Engineering, will be the largest of its kind since 1930. It will be held in Grand Central Palace, New York City, December 2-7, and will be conducted by the International Exposition Company, with headquarters in Grand Central Palace. Charles F. Roth is president of the company and manager of the exposition.

Defense News From Washington

(Continued from page 38)

totaling \$558,959,990 to aid in the national defense program. Mr. Jones said banks participated in 21 of the loans to the extent of \$531,491,000.

Secretary of War Stimson reported that since July 1 the Army had let contracts totaling \$2,936,000,000 including orders for 13,389 of the 18,641 planes for which funds are available. The President announced that in the 8-day period, September 9-17, the Army had awarded contracts totaling \$1,000,810,889 for defense equipment.

On one day during the week, the Army ordered ordnance totaling \$386 million, including \$177 million for small-arms ammunition, \$75,750,000 for tanks, and \$85 million for more than 300 big bombers and parts. The tanks contract was the largest in Army history and more than twice the size of any previous award. Exact numbers were not made public but officials estimated that about 2,000 25-ton medium tanks, and about 1,000 12-ton light tanks were involved. The Navy contracted on the same day for 12 motor torpedo boats and 12 patrol boats for the "mosquito fleet." Navy officials said that the 328 vessels now under construction, constitute a building program greater than the combined programs of Britain, Germany, Italy and Japan.

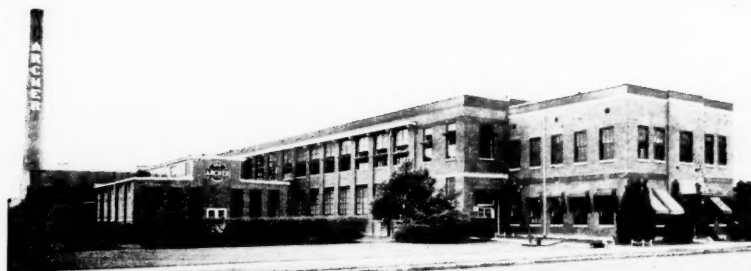
During the week Congress neared completion on its work on defense program appropriations. The House approved the last defense appropriation bill on the calendar for this session—calling for appropriations of \$1,470 million.

Previously the House passed and sent to the Senate a \$267 million deficiency bill including \$80 million for initiation of a projected \$500 million program for expanding and improving civil airports and other funds for minor defense facilities.

Major items in the \$1,470 million bill provided \$160 million in cash and \$150 million in contract authority to speed plane production toward the goal of 36,000 a year by 1942; \$55,500,000 to speed the Army pilot training output to 12,000 flyers a year; \$107,445,499 for purchase of 78,015 motor vehicles, including 18,215 motorcycles; and \$5 million for a naval supply depot at Bayonne, New Jersey.

The Navy Department announced it contemplates invoking the industrial section of the Selective Training and Service Act to assure priority for Government orders but does not as yet contemplate commandeering any private plants. In a formal statement of policy, the Department said invocation of this section of the Act would relieve manufacturers from responsibility for filling "nonessential" private orders placed before the Government contracts were awarded.

(Continued on page 57)



Archer Hosiery Mill, Columbus, Georgia. Air conditioning by the Atlanta office of Carrier Corp., Syracuse, N. Y.

AIR CONDITIONING *Must* Have A GOOD BRAIN

Johnson automatic temperature and air conditioning control systems contribute to the health and efficiency of workers and to the comfort and convenience of customers in many southern industrial and commercial properties. Behind the easy-working miracle of today's mechanical magic are long years of painstaking research and toil, logically directed. That's why Johnson control is the "brain" of the air conditioning system. That's why Johnson works hand in hand with the engineers and contractors retained by owners who realize the money-saving, business-getting value of keeping workers and customers comfortable...Send for bulletins describing Johnson developments in the art of automatic air-conditioning control.



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Davison-Paxon Store, Atlanta, Ga. Werner Nygren, consulting engineer, New York City. York Ice Machinery Corp., air conditioning contractor, York, Pennsylvania.

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Automatic TEMPERATURE AND AIR CONDITIONING *Control*

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ANY BOY can make a motor

by Westinghouse



• For a thing so important to modern life, an electric motor is an amazingly simple device. Just a few pieces of steel, iron and copper, wound with coils of wire. Any bright boy can follow instructions and make one that will run.*

• Yet the most romantic story ever told could be written about the electric motor. It runs practically every mechanical device in use today. It turns the wheels of industry. It carries people to work from the suburbs to the topmost floors of tall buildings. It changes housekeeping from dreaded drudgery to delightful adventure. Our daily lives and livelihoods depend—more than we realize—upon the smooth, effortless spin of a thousand electric motors.

• In fact, electric motors are so common nowadays that we accept them as our primitive ancestors ac-

cepted air, water and fire. We flick a switch—and an automatic razor zips off our whiskers. We push a button—and our automobile motor starts. A faucet turns—and a far-away pump delivers water. A vacuum cleaner cleans, an electric fan cools, an adding machine adds, a phonograph plays—and it's all automatic, as far as most of us are concerned.

• We have been making electric motors for a great many years—in fact we've made millions and millions of them. Naturally, we have improved their design and construction considerably since 1886. We can remember when we thought a 1/4-horsepower motor, which took up more than a cubic foot of room, was a pretty commendable achievement. Now we can pack the same horsepower into a third of the space, sell it for less, and save the user a big dividend in operating cost.

• But after all, it's fitting the motor to the job that really counts. A 1/4-horsepower motor and a 10-horsepower job just can't be combined. Neither can an oil rig and a motor designed for an air conditioning system. That is why Westinghouse offers stock motors in thousands of types, sizes and ratings. And if none of these is exactly what is needed, a special model will be built to order.

• The electric motor is "bread and butter" to us—and to almost everyone else. The more we learn about the jobs it can do, the more we can add to its usefulness. Meanwhile, we keep right on with the testing, experimenting and improving that have helped to make the electric motor the unsung hero of American progress.

* Maybe you know a bright boy who would like to have us send him a little book telling how he can make a toy motor that will run. Just write Westinghouse, 306 Fourth Avenue, Pittsburgh, Pa.

TRADE LITERATURE

VERTICAL PUMP MOTORS—

Booklet—8 pages, illustrating and describing a complete line of bullet-type, vertical, hollow-shaft motors designed especially for deep well turbine pumps; units available in squirrel cage, wound rotor or capacitor AC types, and also for DC operation; features include moisture-proof ventilation, "Tuffer-nell" insulation, and jaw type safety clutch which prevents damage to the driven apparatus.

Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa.

Booklet—12 pages, illustrating and describing the new Davey Air Aristocrat, an air compressor embodying the first application, it is claimed, of the dual drive principle, which makes possible entirely automatic compressor operation; machine also embodies other new features.

Davey Compressor Company, Kent, Ohio.

OIL HARDENING ALLOY STEEL—

Folder—5 pages, describing "Truform," a non-shrinkable, oil hardening alloy steel for use in tools and dies where extreme accuracy is required, outlining in detail its physical properties which include a low coefficient of expansion, greater hardness, exceptional toughness and good machinability; also deals with recommended heat treatment and typical applications, and presents a chart illustrating the tempering range for the product.

Jessop Steel Company, Washington, Pa.

PRE-FINISHED METALS—

Mailing Pieces—dealing with the economy of pre-finished metals, telling why American Nickeloid metals help many manufacturers reduce costs, and illustrating a number of items made from these metals.

American Nickeloid Company, Peru, Ill.

STEAM, AIR AND WATER EQUIPMENT—

Catalog—"Steam, Air and Water Equipment," more than 80 pages, bound loose-leaf style, with handy index breaking up the catalog in five sections, each of which describes in detail one of the various types of Johnson products.

Johnson Corporation, Three Rivers, Mich.

"Georgia on the March"—This is the title of an attractive and interesting booklet issued by the Industrial Department, Georgia Power Company, Atlanta, Ga., dealing with some of the many resources of the state and outlining briefly the things it offers for industry, agriculture, recreation, culture, etc. Beginning its introduction with the observation that "Georgia's richest resources is her infinite variety," the author deals with the subject "Georgia from Seaside to Mountains." The booklet is liberally illustrated and is altogether an attractive and informative publication.

SOCIAL SECURITY—

Booklet—"What You Get From Social Security," 16 pages, prepared by Charles B. Cochran, public relations man of San Francisco, Cal., and written in simple, non-technical language; is directed to the average worker and interprets social security as applied to the individual; publication is illustrated by pictures and charts and features a page of graphic examples of social security benefits, with a page on which a "covered" worker may keep a detailed account of his social security plan.

Charles B. Cochran, 220 Bush Street, San Francisco, Cal.

Rand McNally Bankers Directory—The final edition of Rand McNally Bankers Directory, a leading financial reference book, has come from the press and is ready for delivery. This edition is distinguished by the amount of "vital, up-to-the-minute financial data it contains," including such information as complete bank statistics on the 21 countries that signed the "Act of Havana," with the names of 1940 elected officers and directors. Transit numbers of all United States banks are arranged in a special section, while a complete discontinued bank section gives a 5-year list (up to August 1940) of all banks that have been closed, merged, consolidated, or have been absorbed, with detail information on each. An interesting feature is a list of 281 commercial banks with total resources of \$25,000,000, ranked according to resources. The edition, which contains a total of 2500 pages, also presents latest information on all Government banking agencies, bank associations, etc., as well as a selected list of investment dealers, accessible banking points to every non-bank town, commercial and banking laws, postal regulations, etc. The volume is priced at \$15 delivered.

Defense News From Washington

(Continued from page 55)

The Navy purchased 33 merchant vessels of varying types and sizes for use as auxiliaries. The vessels will be converted into minesweepers, sub-chasers, patrol boats, seaplane tenders and harbor craft.

The War Department also awarded contracts totaling \$34,978,843 for equipment for the Signal Corps, Ordnance Department and the Quartermaster Corps. The largest order, \$9,500,000, went to General Motors Corporation for ammunition components.

WPA Workers Trained for Defense Industries

WPA announced that allotments for national defense projects since July 1 now exceed \$60 million, more than \$50 million of which is to be spent on improvement of Army, Navy, Coast Guard and National Guard facilities and airports important to defense. Nearly \$10 million more was allocated to train WPA workers for defense industries.

The War Department has contracted for construction and operation on a cost-plus-fixed-fee basis of an ammunition loading plant near Wilmington, Illinois. The plant is in addition to a \$10 million TNT plant to be operated by the DuPont Company in the same locality.

Federal Loan Administrator Jones announced a loan of \$20 million to Brazil, for the development of that country's steel industry. An agreement was signed with the chief of the Brazilian steel mission, who stated that Brazil will put \$25 million of its own funds into the steel expansion program.

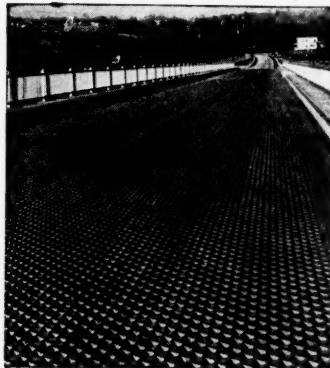
Vocational schools in 472 cities enrolled 107,057 persons for defense training for July and August. The District of Columbia and 43 states have organized 2,836 training courses since July 1. Courses supplementing employment enrolled 36,336 persons in 22 cities. Pre-employment refresher courses enrolled 71,421 persons in 450 cities. More than half of those who had completed training courses by August 31 have already been placed in employment.

Finally, on the last day of September, President Roosevelt approved allocations totaling \$95,340,000 for 110 defense housing projects to provide shelter for families of 27,000 enlisted men and defense workers. Locations of the projects are being withheld until sites are obtained.

Ryerson Offers Manganal Steel

Manganal, an austenetic, tough, non-magnetic steel containing 11 to 13½ per cent manganese and 3½ per cent nickel, has been added to the stock carried by Joseph T. Ryerson & Son, Inc., Chicago, Ill., according to the company, and may be had on immediate shipment. This steel should find wide application, since it fills an industrial need and offers a considerable saving in weight in building composite structures by welding castings of Manganal plates, using Manganal only to resist wear. Hot rolled Manganal steel is carried in the Ryerson stock in plates 48 inches by 120 inches in the following thicknesses: 3/16-inch, ¼-inch, ⅝-inch, ¾-inch, 1-inch and 1½-inch. Typical applications include journal boxes, pedestal liners, wear plates, mill liners, shovel buckets, conveyors, crusher hammers, etc.

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Cairo Approach N. Y. State Hy. Dept. Catskill, N. Y. Engineers

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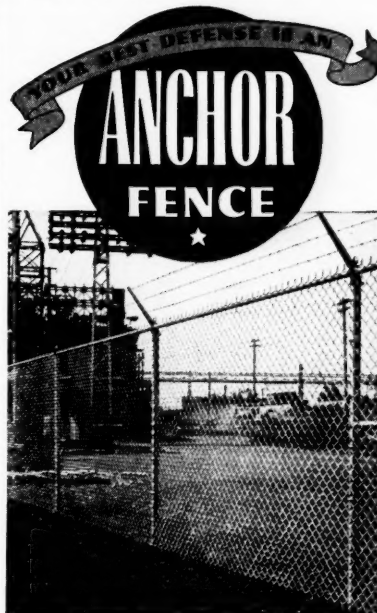
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Chickasaw Pulp & Paper Mills Near Completion

(Continued from page 23)

drum and lime kiln, have not been housed.

All manufacturing buildings are of steel frame construction with reinforced concrete floors. Steel sash has been used throughout except for the glass brick on the operating floor of the Bleach Plant.

In sprinklered buildings, built-up bonded wood roofs have been used.

Elsewhere, roofs are of precast concrete slab.

Instruments and controls throughout the mill were supplied by:

Republic Flow Meters Co.

Taylor Instrument Co.

Bailey Meter Co.

Leeds & Northrup

Manning, Maxwell & Moore

Brown Instrument Co.

Fischer & Porter Co.

Mason-Neilan Regulator Co.

Foxboro Co.

Pumps for water, white water, and many other process uses were supplied by Goulds Pumps, Inc. Special stock pumps were supplied by the Bingham Pump Co., Portland, Oregon. Other special pumps were supplied by the Worthington Pump & Machinery Co.

All parts of the mill will be kept in constant communication with the management office by an intra-plant telephone

system installed by Southern Bell Telephone Co. A system of synchronized International Business Machines time clocks has been installed in the mills, and other I. B. M. equipment will be used in the office. Office equipment is by Remington Rand, Inc.

Allis-Chalmers texrope drives, Falk couplings and gear reducers have been used extensively in machinery drives.

Officers of Hollingsworth & Whitney Company are M. L. Madden, President, W. B. Merlin, Vice President, H. C. Thayer, Treasurer, and Robert Nivison, Manager of Mills. Operating executives of the Chickasaw Mills at Mobile are D. E. Cousins, Mill Manager, William Nivison, Assistant Manager, V. C. Watters, Superintendent of Paper Mill, R. F. Cuyler, Superintendent of Pulp Mill, C. A. Redden, Chief Engineer, R. F. Erickson, Plant Engineer, F. B. Smith, Power Engineer, G. R. Dubus, Master Mechanic, Lawrence Bushell, Chief Electrician, E. M. Leavitt, Chief Chemist, R. F. Weston, Chief Forester, C. V. Reinfeinberg, Office Manager, H. G. Torbert, Executive Secretary, R. E. DeNeefe, Mobile Traffic Manager.

Hardy S. Ferguson & Co., of New York, were consulting engineers, and Rust Engineering Co., of Pittsburgh, were general contractors. Fay, Spofford and Thorndike of Boston designed certain of the administration buildings. Grinnell

Co., Inc., of Providence, R. I. supplied all production and sprinkler piping, and the air conditioning installation. Allegheny Industrial Electrical Co. did the electrical work.

Is Industry Sabotaging National Defense?

(Continued from page 29)

ahead with defense expansion in spite of tax and profit uncertainties and in spite of the continuation of legislative restrictions. Recently the Navy Department praised a leading aircraft maker who has undertaken to build 17,000 motors and who is going ahead with large scale plant expansion before any contract is signed. Secretary of the Navy Knox said "this demonstrates there is 'no sit-down strike' of industry" and added "these fellows, as good sportsmen, are willing to take a chance even before Congress votes the funds and we want to give them full credit for their patriotic spirit."

The overwhelming evidence is that industry is doing its job—doing it quickly and well—doing it as only American industry operating under free private enterprise could do this gigantic job.

American manufacturers have taken the initiative in reviving faith in an aggressive support of our American system

(Continued on page 60)

We have helped

many businesses that have brought
us their financial problems.

Correspondence invited.

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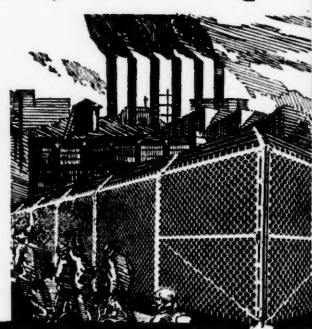
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Heavily galvanized after weaving, resists corrosion. Hercules H-1 posts, strongest, heaviest, unbreakable arms, form backbone of good fence.

Gates, with fool-proof latch bars, ball and socket hinges, built to withstand severe use and abuse. MFRS. and ERECTORS. Agents everywhere. Catalogue. 1620-40 West 31st Street, Chicago, U. S. A.



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A Universal TEST**



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R. D. COLE MFG. CO.

**COLE
TANKS & TOWERS**

• NEWNAN, GEORGIA •

Is Industry Sabotaging National Defense

(Continued from page 58)

with its individual and national freedom based on the tripod of representative democracy, civil and religious liberty and free private enterprise—devoid of any form of despotic tyranny or state socialism.

American manufacturers are fired with the determination to see that the American way of life is not destroyed either by subversive forces within the nation or by attack from enemies beyond its borders. If all groups in the country carry through their appointed roles as unstintingly, as industry is doing its part, America will soon be ready to meet any enemy that may appear on land or sea or in the air.

Dream Highway

(Continued from page 39)

ture roads, the statistics of our unimproved road conditions are deplorable. There are 1,100,000 miles of the country road system that have never known improvement. This condition also applies to 585,000 miles of township and 65,000 miles of state roadway. This gives America a total mileage of 1,750,000 of unimproved, inefficient, impractical highway.

Roads leading from farm to market constitute 1,685,000 miles of this total. Besides being the lifelines of large cities in peacetime, militarists tell us that many of our secondary roads will be used as access routes to the splendid locations for training camps and airports that our "back country" affords. If this be true, these roads must be improved.

Highways today are called upon to serve a twofold purpose. One is as important as the other. The steady flow of peacetime commerce is as essential as the transportation of wartime supplies and troops. It is expedient, therefore, that highways be adequate to handle this added traffic in the hour of distress. More super-highways throughout the country are advocated by highway and military experts. Brigadier General Jacob L. Devers and Major Eugene Harrison, who represented Secretary of War Henry L. Stimson at the Turnpike Preview, said that the road would be a great benefit to the nation in war as well as peacetime.

"The importance of the road for the transportation of army supplies and troops cannot be minimized," General Devers remarked, "particularly as it leads to one of the most vital cities (Pittsburgh) in the nation's defense."

At the Preview Chairman Jones predicted that the Turnpike was just the beginning of a series of great roads linking New Orleans and Boston.

Nine Month Contract Total Highest on Record

(Continued from page 45)

plant and to develop manganese deposits near Lynchburg, Va.;

A \$1,800,000 contract for an addition to the Southland Paper Mills, Inc., the South's only newsprint mill, at Lufkin, Texas;

Award of contract for substructure and superstructure of the addition to Plant Atkinson of Georgia Power Co., Atlanta;

Establishment of a tin smelting plant in the New Orleans, La., section, with annual capacity of 20,000 tons. Negotiations progressing, according to G. A. Guerrero, Bolivian consul;

Purchase of 31,000 tons of rail and accessories under an estimated program for next year by Louisville & Nashville Railroad;

Expansion of a refinery south of Catlettsburg, Ky., and new river transportation facilities proposed at cost of \$650,000 by Ashland Oil & Refining Co.;

A gasoline and repressuring plant to be constructed in northern Archer County, Texas, by Continental Oil Co., Fort Worth, to cost \$500,000;

Award of contract for a \$500,000 metallic pectinate plant at McAllen, Texas, for Rio Grande Valley By-Products Corp.;

Erection of a \$500,000 flour mill at Decatur, Ala., for Nebraska Consolidated Mills, contract for which was awarded;

A \$500,000 power line and substation
(Continued on page 62)

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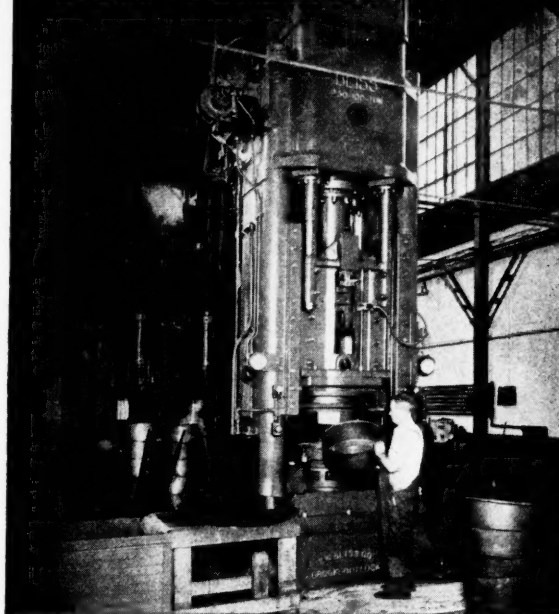
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STAINLESS STEELS

The 1940 Population of the South

(Continued from page 28)

highest being 319.9 per cent for Yoakum and another five counties, Ector, Gaines, Gregg, Moore and Ward, all registered a gain of more than 100 per cent. Seven new cities in this year's census swelled the number of those having a population exceeding 10,000 to a total of 42 cities, only five of them registering a decline. On the other hand, many of the remaining 37 marked large increases—Austin, 65.4 per cent; Bryan, 52.7 per cent; Corpus Christi, 107.1 per cent; Longview, 173.4 per cent; Lubbock, 53.9 per cent; Tyler, 65.1 per cent; and University Park, 243.4 per cent.

Virginia registered an increase of 10 per cent in the 10-year period since 1930 as against only 4.9 per cent between 1920 and 1930. In this year's census several counties had large increases—Arlington, 112.3 per cent; Buchanan, 88 per cent; Elizabeth City, 45.6 per cent; and Fairfax, 61 per cent. Two new cities in the list of those with more than 10,000 population swelled the total number in the state to 15 and all but one of these marked increases varying in amount from 4.1 per cent for Richmond to 47.7 per cent for Fredericksburg. The one city which declined had a loss of only 39 individuals.

At the time this is written the census is still incomplete, even for preliminary summaries, and no figures are available, in particular, for South Carolina and West Virginia.

Southern Cities of 100,000 or More Population

City	Population	% Increase	Rank
Baltimore, Md.	854,144	6.1	7
St. Louis, Mo.	813,748	—1.0	8
Washington, D. C.	663,153	36.2	11
New Orleans, La.	492,282	7.3	15
Kansas City, Mo.	400,175	0.1	19
Houston, Tex.	386,150	32.1	21
Louisville, Ky.	318,713	3.6	24
Atlanta, Ga.	302,538	11.9	29
Dallas, Tex.	293,306	12.6	31
Memphis, Tenn.	291,312	15.1	32
Birmingham, Ala.	264,151	1.7	35
San Antonio, Tex.	253,143	9.3	37
Oklahoma City, Okla.	204,517	10.3	42
Richmond, Va.	190,341	4.1	45
Ft. Worth, Tex.	177,748	8.7	46
Jacksonville, Fla.	174,336	34.6	47
Miami, Fla.	170,877	54.4	48
Nashville, Tenn.	167,415	8.8	50
Norfolk, Va.	143,275	10.5	60
Tulsa, Okla.	141,750	0.3	62
Chattanooga, Tenn.	128,138	7.0	66
Knoxville, Tenn.	112,002	5.9	75
Tampa, Fla.	107,674	6.4	83
Charlotte, N. C.	100,327	21.4	91

Population of the South

State	Population	% Increase	Rank
Alabama	2,830,285	7.0	17
Arkansas	1,948,268	5.1	24
Dist. of Col.	663,153	36.2	
Florida	1,877,804	28.6	27

Georgia	3,119,953	7.3	14
Kentucky	2,839,927	8.6	16
Louisiana	2,360,661	12.3	21
Maryland	1,811,546	11.0	28
Mississippi	2,181,763	8.6	23
Missouri	3,775,737	4.0	10
North Carolina ..	3,563,174	12.4	11
Oklahoma	2,329,808	—2.8	22
South Carolina ..	1,905,815	9.6	25
Tennessee	2,910,992	11.3	15
Texas	6,418,321	10.2	6
Virginia	2,664,847	10.0	19
West Virginia ...	1,900,217	9.9	26

South	45,102,271	9.3
U. S.	131,414,734	7.0

Nine Month Contract Total Highest on Record

(Continued from page 60)

contract let by Arkansas Power & Light Co., Pine Bluff, Ark.;

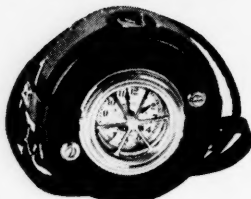
Submission of a proposal to the Government for erection of a toluene plant by Humble Oil & Refining Co., Houston. Shell Oil Co. the previous month awarded contract for a similar plant;

An addition to the American Car & Foundry plant at St. Louis, Mo., involving an estimated \$400,000 expenditure;

Contracts let under Bethlehem Steel Company's plan for expanding its Key Highway ship repair plant in the upper Baltimore harbor;

Plans for a \$300,000 maintenance and replacement program announced by the Piedmont & Northern Railroad, Charlotte, N. C.

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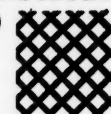


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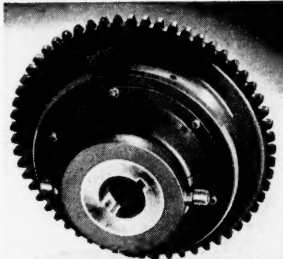
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National Defense Program Awards in the South

(Continued from page 42)

" "	Norfolk Tent & Awning Co., Norfolk	Pyramidal tents	44,000.00
" "	Crawford Mfg. Co., Richmond	Mattress Covers	60,000.00
" "	Old Dominion Mfg. Co., Norfolk	Mattress Covers	20,295.00
Supplies & Accts.	Tidewater Supply Co., Inc., Norfolk	Machine, boring, drilling, and mill- ing	19,806.00
Yards & Docks	Tidewater Supply Co., Inc., Norfolk	Turret lathes	17,071.00
Supplies & Accts.	Old Dominion Paper Co., Norfolk	Memorandum Pads; bond paper ...	30,872.03
USHA	Smith-Courtney Co., Richmond	Steam, drop hammer	11,500.00
Marine Corps	Construction loan for 500 dwelling units near Navy Yard, Norfolk		1,800,000.00
" "	Richmond Hardware Co., Richmond	Hardware	337.00
Supplies & Accts.	Deschutes Lumber Co., Norfolk	Lumber	1,255.00
	Garry Steel Products Corp., Norfolk	Mooring Buoys	15,990.00
	Newport News SB & DD Co., Newport News	4 Aircraft carriers	Not available
	Newport News SB & DD Co., Newport News	2 Cruisers	Not available
	Norfolk Navy Yard, Norfolk	2 Battleships	Not available
Chemical Warfare	Virginia Rubatex Corp., Bedford	Valves	1,992.00
" "	Virginia Rubatex Corp., Bedford	Outlet Valves	4,980.00
Ordnance	The Tredegar Co., Richmond	Ammunition Components	5,317.20
Qtmtr. Corps	Dewey G. Weddle & Company, Norfolk	Temporary Housing, Ft. Eustis....	389,000.00
" "	Hercules Powder Company of Wilmington, Delaware..	Construction of a Smokeless Powder Plant near Radford Va. The plant will be owned by the Federal Gov- ernment (Not previously re- ported)	25,000,000.00
" "	Virginia Woolen Co., Winchester	Overcoating	160,295.00
WEST VIRGINIA			
Qtmtr. Corps	Blue Jay Mfg. Co., Huntington	Mattress covers	96,903.00
Marine Corps	Weirton Steel Co., Weirton	Steel	364.00
" "	The D. E. McNicol Pottery Co. of W. Va., Clarksburg..	Chinaware	1,314.00
Ordnance	Carbide & Carbon Chemicals Corp., South Charleston..	Ether	27,500.00
" "	The International Nickel Co., Inc., Huntington	Copper Nickel Alloy Rods and Cylinders	184,030.10
Qtmtr. Corps	Berkeley Woolen Co., Martinsburg	Overcoating	160,295.00

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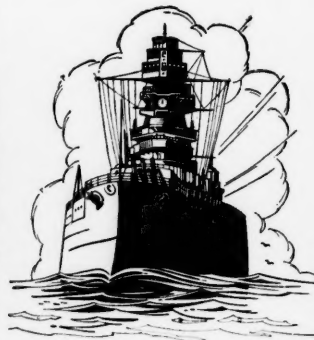
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